June, 1958
the Manufacturing Confectioner

CONVENTION
OF THE NATIONAL
CONFECTIONER'S
ASSOCIATION

75 th DIAMOND JUBILEE

PROGRAM
PAGE 23

DIRECTORY OF EXHIBITS PAGE 67

TRUE FLAVOR CHARACTER AT LOW COST Yours with DOLCO® IMITATION FLAVORS

Check the chart below! See what unusual economies are available with the highly concentrated, true to type DOLCO FLAVORS.

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FONDANTS & CREAMS	5.75
1/4 to 1/2 oz. to 100 lbs.	4.25
PECTIN JELLIES	3.75
1/4 to 1/2 oz. to 100 lbs.	4.00
STARCH-GUMS	7.75
1 to 1½ oz. to 100 lbs.	3.75

The above listing is but representative.

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candy business

Vernells and Thompsons bought by Van De Camp

Vernell's Buttermints, Inc. and Thompson's Candy House have been purchased by Van De Camp's Holland Dutch Bakeries of Los Angeles. Van De Camp is a division of General Bakeries. An addition of 17,000 square feet will be added to the present 18,000 square feet of the Vernell plant to house the Thompson operation and additional lines of candy.

George Thompson, former president of Thompson's, is vice president in charge of production of the combined Vernell-Thompson operation, and Park Westover, formerly vice president in charge of sales of Vernell's, will be general manager and vice president of the new firm.

Verne Fortin, one of the founders of Vernell's, has been president of Van De Camp's since 1956. The new candymaking firm will produce, in addition to the products of Thompson and Vernell's, a line of medium price assorted chocolates of the home made variety.

Candy sales drop in March

Candy sales in March showed the first drop so far this year in comparison with the same month a year ago. They were down 2%. For the first three months of the year, however, sales are estimated at \$97,278,000, an increase of 3% over 1957.

Chocolate manufacturers took a very heavy drop of 19% from the month a year ago, and their sales to date are 10% below the same period last year. Manufacturer-retailers are up 17% from the three months last year. Manufacturer-wholesalers showed a drop of 2% in March from the year before, but remain 3% ahead for the three months.

Gott to retire-Steinberg in

Philip P. Gott will retire as president of the National Confectioners Association on December 31st, 1958. He will have completed seventeen years with the NCA at that time, serving through a period covering the second world war, the Korean conflict and the various post-war adjustments.

Douglas S. Steinberg has been elected assistant president of the National Confectioners Association, effective June 1st. He has been director of public relations of the National Lumber Manufacturers Association.

Alex Dreier to salute candy

Alex Dreier will salute the candy industry July 6th on his segment of NBC Monitor, over the entire network of nearly 200 stations. Dreier's tribute will tie in with the NCA and ARC conventions that start in San Francisco that day.

This broadcast is one of a series called "America on the Go", which feature different American industries during the period of their major annual meeting or convention.

The program will be aired at 6:05 P.M. EDT. Dreier will discuss the history of candy, and tell of its growth. The nutritional values and the place of candy in the diet will be covered also.

Wolch buys Brecht-Iverson g.m.

Tom Wolch has bought an interest in Brecht Candy Company of Denver, Colorado. Ray Iverson has been named general manager of Brecht. Iverson was vice president and purchasing director at Nutrine Candy Company before it was bought and liquidated. Walter Rau is the sales manager for Brecht. He was for many years the western sales manager for Rockwood Chocolate Company with headquarters in Chicago.

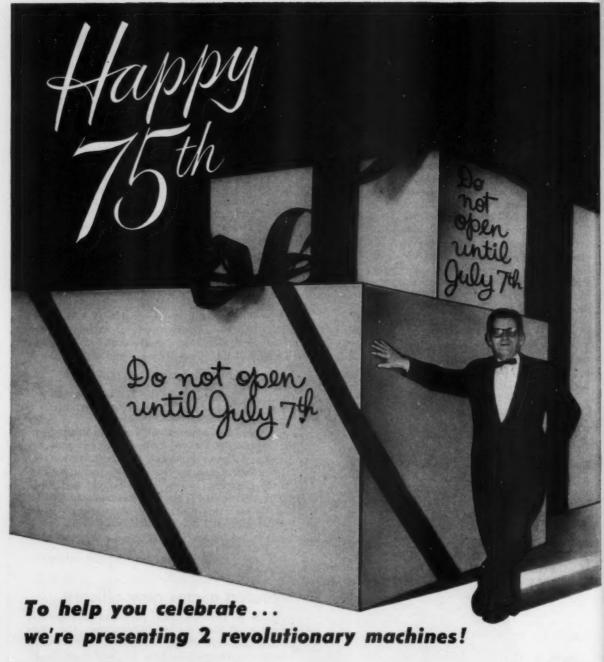
Johnston names new officers

Elliott S. Peterson, vice president and general manager of Miss Saylor's Chocolates, Inc., was elected president of the Northern California Confectioner's Association. Don D. Miller of A. E. Staley Mfg. Co. was elected secretary.

N. Calif. Ass'n elects Peterson

Walter V. Johnston, Chairman of the executive committee of Robert A. Johnston Company, has been named president of the firm. Keith C. Johnston has been named executive vice president.

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6 - The Manufacturing Confectioner

Curtiss promotes Sheetz appoints Carmichael

Curtiss Candy Company has created the post of assistant general sales manager for merchandising and named Lloyd B. Sheetz to it. He will coordinate the company's product planning, package design, advertising and sales promotion and market research. Robert L. Carmichael has been named to succeed Sheetz as assistant general sales manager for direct sales. Carmichael was with Curtiss for twenty years, though for the past two years has been sales manager for DeMets Candies.

Clive Day of Nestle dies

Clive C. Day, Board Chairman of The Nestle Company and president for several years of the Association of Cocoa and Chocolate Manufacturers of the U.S., died May 10th.

New AACT officers-Dresel pres. Heinz, Kroekel, veeps

The newly elected officers and eouncilors of the American Association of Candy Technologists are: President—Hans Dresel, 1st Vice President—E. N. Heinz, Jr., 2nd Vice President—C. R. Kroekel, Secretary-Treasurer—John A. Kooreman, Assistant Secretary—John W. Vassos. The newly elected Councilors at large are: Walter Horton Corwin, Stanley E. Allured, and Dr. R. F. Korfhage. Retiring president Otto Windt is also a councilor at large. These officers and councilors will be installed on July 7th in San Francisco at the NCA convention.

Diamond Walnut plant tour

Diamond Walnut Growers, Inc., is scheduling a tour through their production facilities in Stockton, California on Friday, July 11th. All members of the National Confectioners Association who are attending the NCA convention that week are invited to take part in this visit. Further information is available from the Diamond booth at the exposition.

Honey Production expected high

Honey production is expected to be excellent this year, with adequate supplies of bees. The season will start a little later than usual because of the severe winter weather in the south, but is expected to be long enough to provide production up to last years total.

Oswalt joins Boulevard

R. J. Oswalt has joined the Boulevard Candy Company in the production department. He was vice president and purchasing agent for Walter Williams Candy Company, and since then worked with Wallace Shape at Pure Candies.

Corn refiners agree set syrup terminology

The Corn Industries Research Foundation has approved standards of definitions for products obtained from the controlled hydrolysis of corn starch. These standards follow:

Corn Dextrin: the product with solids containing 1% to, but not including, 13% reducing sugars calculated as anhydrous dextrose (D. E. from 1 up to 13)

Malto-dextrin: the product with a D.E. of 13 up to 28.

Corn Syrup: the product with a D.E. of 28 or above.

Low conversion syrup: with a D.E. of 28 up to 38. Medium conversion syrup: with a D.E. of 38 up to 48.

High conversion syrup: with a D.E. of 58 up to

Corn syrup solids: This product is classified according to the above system of syrups from which it is made.

Two new packaging films Trycite-polystyrene Conolex-linear polyethylene

Two new packaging films have been anounced in the past month. One is Trycite, a polystyrene film by The Dow Chemical Company. While this material has been known and used in the thicker guages for some years, this is the first time that guages up to 2 mils have been economically feasible and practical at prices that are competitive with other packaging films. It is expected to complete primarily with celophane and acetate, as its general characteristics are similar to them.

The other new film is Conolex, an extruded linear polyethylene film by the Continental Can Company. The characteristics of this film are said to resemble cellophane in clarity, stiffness and sparkle. Being linear, its gas transmission rates are fixed and low, superior to polyethylene and most cellophanes. Another characteristics of this linear film is that it will tear in only one direction, and in a straight line. It can therefore replace the tear tape, as a notch can be used to start an opening tear that will follow in a straight line completely around or across a package.

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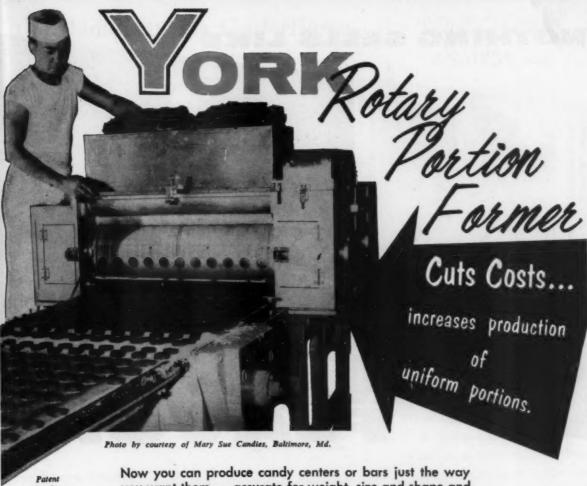
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the Manufacturing Confectioner

with International Confectioner

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June 1958

Volume XXXVIII-Number 6

Edited and Published in Chicago

The Candy Manufacturing Center of the World



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The consultant in the candy field

Consumer taste testing for candy

Your future factory

This is the fourth installment of an extensive article on process development and plant layout, with particular emphasis on planning and construction of a new factory buildingV. P. Victor 81

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COVER: We salute the National Confectioners Association with this months cover, on the occasion of its 75th Diamond Jubilee Convention. The complete program starts on page 23.

Founder-Earl R. Allured
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By
Stroud Jordan, M.S., Ph.D.
and
Katheryn E. Langwill, M.S., Ph.D.

This volume, first published in 1946, is still the only published reference work on the subject of confectionery analysis. The pioneering work done by Dr. Jordan remains the standard in the field, making a second printing of his book necessary. This printing is in all respects identical to the first printing.

In assembling this volume reference is made to applicable methods. Where satisfactory methods of analysis are of general knowledge they are incorporated by reference. All specially developed methods and procedures are incorporated in detail.

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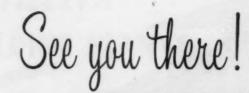
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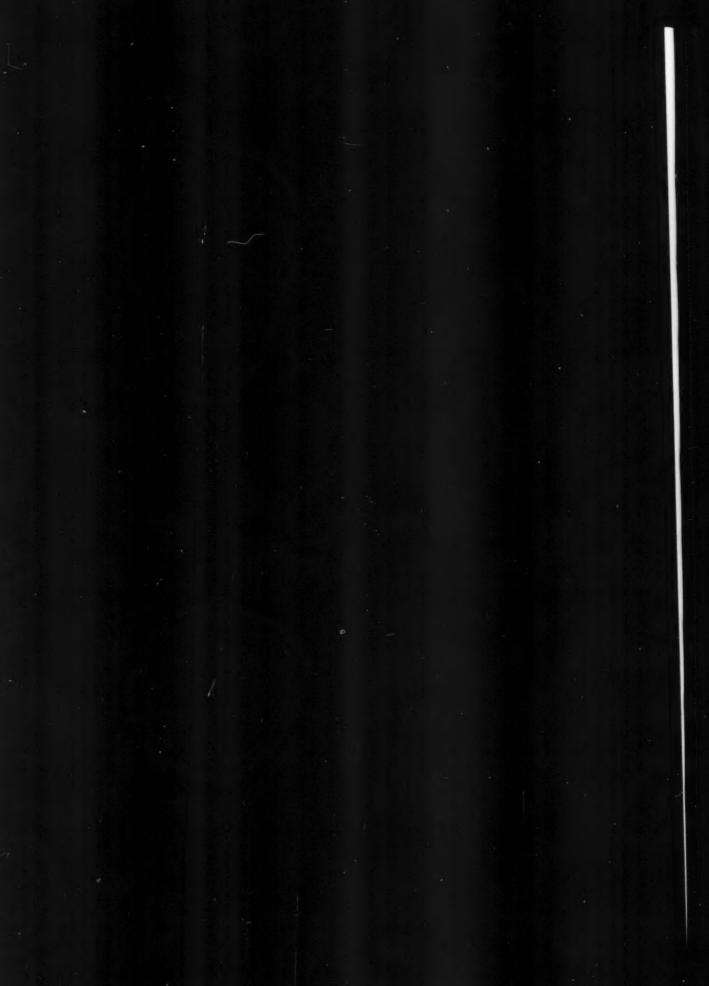
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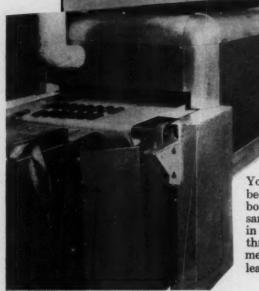
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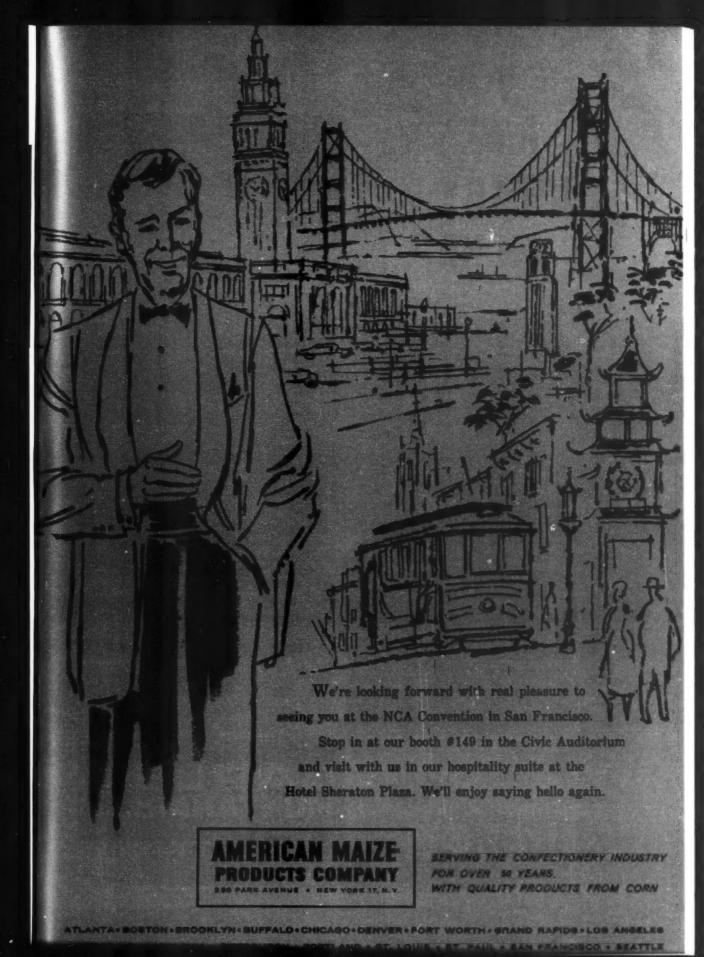
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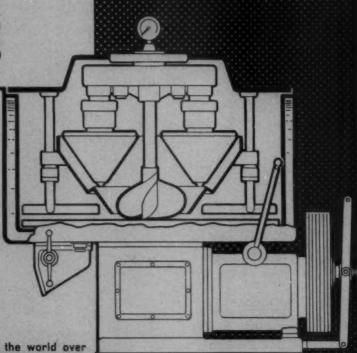
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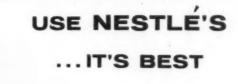
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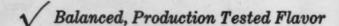
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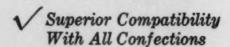


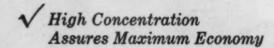
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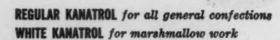














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the Manufacturing Confectioner

June, 1958

Volume XXXVIII-Number 6

NCA Convention Program

July 6th to 10th - Sheraton-Palace Hotel, San Francisco

SUNDAY-JULY 6

Attend the religious service of your choice

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4:00 p.m. Busses leave from hotels

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Vice President, Cardinet Candy Co., Inc.
Oakland, Calif.
Chairman, NCA Sunday Get-Together
Committee

MONDAY-JULY 7

8:00 a.m. NCA GOLF TOURNAMENT

The Olympic Country Club at Lakeside, San Francisco, Calif.

FRANK S. TIMBERLAKE Guittard Chocolate Co., Burlingame, Calif. Chairman, NCA Golf Tournament Committee

9:00 a.m. JOINT TECHNICAL SESSION OF THE NATIONAL CONFECTIONERS' ASSOCIA-TION and AMERICAN ASSOCIATION OF CANDY TECHNOLOGISTS

> Western Regional Research Laboratory, U.S. Department of Agriculture, Albany, Calif.

Leave Sheraton-Palace Hotel at 9:00 a.m. for Laboratory by private car. 9:30 a.m. OFFICIAL OPENING OF JOINT TECHNICAL SESSION

OPENING AND WELCOME-PHILIP P. GOTT, President,

National Confectioners' Association

Presiding:

OTTO H. WINDT,
E. J. Brach & Sons, Chicago, Ill.
President, American Association of Candy
Technologists,
Member, NCA Research Committee,
Co-Chairman, NCA-AACT Technical
Sessions Committee

9:40 a.m. SCIENTIFIC PROGRESS IN THE FOOD INDUSTRY

DR. MICHAEL J. COPLEY, Director, Western Utilization Research and Development Div., U.S. Department of Agriculture Laboratory, Albany, Calif.

10:00 a.m. REPORT ON RESEARCH PROJECTS AT THE SOUTHERN REGIONAL RESEARCH LABORATORY

> DR. L. F. MARTIN and R. O. FEUGE, Southern Utilization Research and Development Div., U.S. Department of Agriculture,

New Orleans, La.

10:30 a.m. CANDY and ORANGE JUICE BREAK

10:40 a.m. QUALITY CONTROL

Presiding:
LEWIS WEIL,
Vice President, Blum's, San Francisco, Calif.
Co-Chairman, NCA-AACT Technical Sessions
Committee

BURNS OFFERS YOU

COMPLETE COCOA EQUIPMENT

Raw Cocoa Cleaners

Combine efficient, dust-proof removal of light trash with pneumatic and magnetic removal of heavy foreign matter.



Continuous Roasters

Maximum quality control and built-in automation of feeding, roasting, cooling and discharge. Sizes from 1200 lbs/hr.



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Design emphasizes clean, uniform roasts. New model enables dutching and roasting nibs in the same machine.



Crackers and Fanners

Burns sets new industry standards for coarse crack, maximum nib recovery, cleaner operation, easy maintenance!



Bean and Nib Storage and Conveying Systems

Complete line! Tailor-made bins, feeders, conveyors, and elevators for maximum efficiency bean and nib handling.



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Qualified Burns plant engineering and field installation personnel are always at your call.



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AND SONS, INC.
NEW YORK CHICAGO
DALLAS SAN FRANCISCO

600 WEST 43rd STREET . NEW YORK 36, N.Y.

GEORGE H. THOMPSON, Thompson's Candy House, Seattle, Wash.

11:00 a.m. TECHNICAL PROGRESS IN THE CONFECTIONERY INDUSTRY PREVENTION OF STALENESS AND RAN-

CIDITY IN NUT MEATS AND PEANUTS
H. B. COSLER,

U.S. Quartermaster Food and Container Institute, Chicago, Ill.

11:20 a.m. QUESTIONS AND ANSWERS

12:00 Noon BUSINESS MEETING of the AMERICAN ASSOCIATION OF CANDY TECHNOLOG-ISTS

12:45 p.m. LUNCHEON at SPENGERS

2:15 p.m. TOUR of the LABORATORY

Presentation of STROUD JORDAN AWARD by NORMAN W. KEMPF, Manager, Chocolate Development, Walter Baker Div., General Foods Corp., Dorchester, Mass.

General Foods Corp., Dorchester, M

3:30 p.m. LEAVE for CIVIC AUDITORIUM-Visit NCA EXPOSITION

4:00 p.m. RECEPTION for NEWSPAPER and MAGAZINE WRITERS, EDITORS and HOME ECONOMISTS

Under direction of NCA Press Department

5:00 p.m. EDITORS, WRITERS and HOME ECON-OMISTS visit the NCA EXPOSITION with Technical Representatives

TUESDAY-JULY 8

LARKIN HALL

9:30 a.m. OFFICIAL WELCOME AND OPENING OF THE NCA DIAMOND JUBILEE CONVEN-TION
PHILIP P. GOTT, President
National Confectioners' Association of the U.S., Inc.

9:40 a.m. THIS IS THE DIAMOND JUBILEE CELE-BRATION
VICTOR H. GIES,
Mars, Incorporated,

Mars, incorporated,
Chicago, Ill.,
Chairman, NCA Board of Directors

9:50 a.m. WELCOME TO VISITORS AND OUTLINE
OF THE CONVENTION PROGRAM
KENNETH L. WHITE, Vice President,
MacFarlane's Candies,
Oakland, Calif.,
Chairman, NCA Diamond Jubilee Convention,

10:00 a.m. PROGRAM OF THE FINANCIAL OPERA-TIONS COMMITTEE

Program Committee

Presiding:
ANDREW H. HEIDE,
President, Henry Heide, Inc.
New York, N.Y.

CHARLES L. SMESSAERT, Executive Vice President, Walter H. Johnson Candy Co., Chicago, Ill., NCA Secretary-Treasurer

24 - The Manufacturing Confectioner

10:15

11:00

11:30

12:00

12:15

1:35

1:45

1:50

2:00

2:10

10:15 a.m. HOW MUCH ARE YOU WILLING TO BET ON YOUR PRODUCT COSTS?

> HORACE G. BARDEN, Partner Ernst & Ernst, Chicago, Ill. OUESTION AND ANSWER PERIOD

11:00 a.m. CURRENT BUSINESS OUTLOOK IN RELA-TION TO THE CONFECTIONERY INDUS-TRY

> Presiding: EDWARD F. PEARSON, Pearson Candy Co., Culver City, Calif.

R. I. NOWELL, Vice President and Economist, Equitable Life Assurance Society of United States, New York, N.Y.

11:30 a.m. MOTIVATION RESEARCH

JOHN J. NELSON, Director of Marketing Research, Minor, Honig and Cooper Advertising Agency, San Francisco, Calif.

12:00 Noon PRESENTATION OF POLICY STATEMENTS

WILLIAM E. BROCK, Jr., Chairman of the Board, Brock Candy Co., Chattanooga, Tenn.

12:15 p.m. ADJOURN to POLK HALL for LUNCHEON

1:00 p.m. OPENING LUNCHEON OF THE NCA DI-AMOND JUBILEE CONVENTION

Presiding:
REED W. ROBINSON,
Golden Nugget Sweets, Ltd.,
San Francisco, Calif.,
Chairman, NCA Diamond Jubilee
Convention Publicity Committee

PRESENTATION OF COLORS-Marine Color Guard

THE STAR SPANGLED BANNER INVOCATION—CAPTAIN L. F. GERBERT, U.S.N.

Luncheon

1:35 p.m. Music by MARINE CORPS QUARTET

1:45 p.m. IN MEMORIAM by W. C. DICKMEYER,
President

Wayne Candies, Inc., Ft. Wayne, Ind., NCA
Director

1:50 p.m. INTRODUCTION OF HONORED GUESTS
PHILIP P. GOTT, President,
National Confectioners' Association of the U.S.

2:00 p.m. WELCOME TO SAN FRANCISCO GEORGE CHRISTOPHER, Mayor of San Francisco

2:10 p.m. LUNCHEON ADDRESS

DR. MORTIMER J. ADLER,

Director, Institute for Philosophical Research,
San Francisco, Calif.

BURNS OFFERS YOU



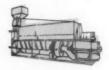
Nut Cleaners

Unbeatable combination!
Recirculating Cleaner, tops
for light trash. Blanched Nut
Cleaner, best for heavier matter.



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Famous Thermalo process guarantees uniform, clean, even roasts, hour after hour. Sizes to 10,000 lbs/hr.



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Sizes and types to meet any individual need. Efficient cooling equipment maintains uniformity of roast.



Split Nut Blanchers

It's Burns No. 8 for maximum efficiency of skin removal with minimum meal accumulation. Rated to 2500 lbs/hr.



Butter Mills

Units to produce any desired grind with consistent uniformity. Output ranges to 4000 lbs/hr on coarser settings.



Complete Plants

From raw peanut dump right through to packaging! Design and installation for individual needs is a Burns specialty!



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AND SONS, INC.
NEW YORK CHICAGO
DALLAS SAN FRANCISCO

600 WEST 43rd STREET . NEW YORK 36, N.Y.

2:50- VISIT THE CONFECTIONERY INDUSTRIES

5:00 p.m. EXPOSITION

8:00 p.m. COST ACCOUNTING

Presiding:
NEAL V. DILLER,
Vice President, White Candy Co.,
San Francisco, Calif.,
General Chairman, NCA Diamond Jubilee
Convention

Discussion Moderator: HORACE G. BARDEN, Partner Ernst & Ernst, Chicago, Ill.

WEDNESDAY-JULY 9

ROSE ROOM, SHERATON-PALACE HOTEL

7:45 a.m. EARLY BIRD BREAKFAST

sponsored by
Golden West Candy Salesmen's Club, Northern
California Confectioners' Association, Los Angeles Confectionery Sales Club, Northwest
Candy Co. and Denver Mile-Hi Candy Club
Presiding:

A. E. BRAINARD,

Harry N. Nelson Co., San Francisco, Calif., Director, Golden West Candy Salesmen's Club

A QUICK LOOK-A QUESTIONING EYE RILEA W. DOE, Vice President, Public Relations,

Safeway Stores, San Francisco, Calif.



Adds "Sell"—because It's Distinctively Different

MIL-LAIT gives your milk chocolate and other chocolate products the "million dollar" flavor that places you in a sharp competitive position. MIL-LAIT is an enzyme modified 28½% butterfat whole milk powder developed from a scientifically controlled lipase enzyme system. This scientific laboratory control in turn gives you positive flavor control in your product. Only a small amount of MIL-LAIT replacing part of your regular supply of normal milk powder makes a "world of difference" in final flavor.



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419 PREDERICK STREET P. O. BOX 524
WAUKESHA, WISCONSIN

9:00 a.m. ADJOURN TO LARKIN HALL

9:30 a.m. OPERATION TURNOVER

Presiding: GEORGE H. THOMPSON, Thompson's Candy House Seattle, Wash.

ROBERT C. DAUGHERTY, Vice President—Sales,
James O. Welch Co.
Cambridge, Mass.
JOE CALLEN,
Kling Studios,

10:15 a.m. LIFE MAGAZINE SURVEY

Chicago, Ill.

Presiding: GEORGE H. CARDINET, Jr., Vice President, Cardinet Candy Co. Oakland, Calif.

ARTHUR CHADWICK, Merchandising Manager,
LIFE Magazine
New York, N.Y.
QUESTION AND ANSWER PERIOD

11:00 a.m. CANDY AND CHOCOLATE BREAK

11:10 a.m. BUILDING A SUCCESSFUL BUSINESS

KING WILKIN, President,

Zellerbach Paper Co.
San Francisco, Calif.

11:40 a.m. SERVICE-THE CHARACTER OF A COM-PANY

Presiding:
L. JACK SWEET,
Vice President, Sweet Candy Co.
Salt Lake City, Utah

R. L. FITZPATRICK, Vice President, American Airlines, Dallas, Texas

12:10 p.m. SPEAKER TO BE ANNOUNCED

12:30 p.m. ADJOURN TO POLK HALL FOR LUNCH-EON

1:00 p.m. LUNCHEON

Presiding:
KENNETH L. WHITE,
Vice President, MacFarlane's Candies
Oakland, Calif.
Chairman, NCA Diamond Jubilee Program
Committee

INVOCATION-LT. COL. D. D. DRAKE, U.S.A.

1:45 p.m. INTRODUCTION OF COMMITTEE CHAIR-MAN

> NEAL V. DILLER, Vice President, White Candy Co., San Francisco, Calif., General Chairman, NCA Diamond Jubilee Con

2:00 p.m. PROGRAM TO BE ANNOUNCED

2:30- VISIT THE CONFECTIONERY INDUSTRIES 5:00 p.m. EXPOSITION

8:00 p.m. TECHNICAL PROBLEMS OF THE INDUS-

Presiding: OTTO H. WINDT, E. J. Brach & Sons, Chicago, Ill. and LEWIS WEIL,

Vice President, Blum's, San Francisco, Calif.

THURSDAY-JULY 10

LARKIN HALL

9:30 a.m. REPORT ON CHOCOLATE

Presiding: LEM T. JONES, Russell Stover Candies, Kansas City, Mo.

"GROWING THE COCOA BEAN"-film pres-

THE CHOCOLATE SITUATION

HENRY BLOMMER, President, The Blommer Chocolate Co., Chicago, Ill.

(Other participants to be announced)

QUESTION AND ANSWER PERIOD

11:00 a.m. THE REVOLUTION IN FOOD PROCESSING

Presiding: RICHARD D. MUZZY, Vice President, Daggett Chocolate Co. Cambridge, Mass.

DR. EMIL MRAK, Head, Department of Food Technology, University of California

11:30 a.m. CANDY AND CHOCOLATE BREAK

11:45 a.m. EXECUTIVE AND CLOSED SESSION NCA Active Members only

> Presiding: VICTOR H. GIES, Mars, Inc., Chicago, Ill. Chairman, NCA Board of Directors

1:00 p.m. ADJOURN THE CONVENTION

1:00- VISIT THE CONFECTIONERY INDUSTRIES 5:00 p.m. EXPOSITION

6:00- DIAMOND JUBILEE RECEPTION 8:00 p.m. **GOLD ROOM**

> WILLIS J. SIMS Anheuser-Busch, Inc., San Francisco, Calif. Chairman, NCA Diamond Jubilee Reception Committee

8:00 p.m. DIAMOND JUBILEE DINNER DANCE GARDEN COURT

> CLARENCE M. KRETCHMER, American Licorice Co., San Francisco, Calif. Chairman, NCA Diamond Jubilee Dinner Dance

OTHER FAMOUS EQUIPMENT

BAKER PERKINS (EXPORTS) LTD.



The world leader in chocolate machinery: Liquor Mills, Refiners, Conches, Enrobers. Also, Master Starch Plants, Con-tinuous Sugar Cookers, Continuous Fondant

A. SAVY JEANJEAN & CIE



World-famous Savy Automoldas. Tailor-made molding plants for bars, shell goods, hollow novelties. High-speed Starch Molding Plants. Ingenious 2 color Dovo Depositor.

VORMENFABRIEK



automatic or hand operations solid and hollow novelties. and low price.

These excellent equipment lines, added to Burns' own offerings in cocoa bean and peanut machinery, give you complete service in the chocolate and confectionery fields.

E US AT BOOTH 15



E EXTEND GREETINGS to the National Confectioners' Association upon the 75th Anniversary of its founding and express our appreciation of the important contribution this valued trade group has made to our industry, over the years. As we join with you in observance of this significant milestone in the progress of the chocolate and confectionery business, we look to the future with confidenceconfidence in the growth of our industry - confidence in the vigilance and capacity for service so amply demonstrated by the National Confectioners' Association in its first seventy-five years.

Closely identified with progress in the chocolate and confectionery trade for nearly a quarter of a century and a pioneer in the introduction of lecithin and lecithin products, the W. A. Cleary Corporation is one of the industry's largest suppliers of lecithin and lubricating agents for chocolate and confectionery processing. Used with confidence by the 'big names' in candy, Cleary products assure consistently high quality and production along with proven manufacturing economies.

A free flowing, high quality lecithin extracted from the best of soya bean oils. Uniform in desired lecithin action; unaffected by functional or seasonal variations.

An improved formula lubricant of wax-like consistency and excellent lubricating qualities, Panlube is especially recommended for running vacuum pan goods.

A high quality anti-sticking agent for all releasing purposes. Made from the finest vegetable oils, Clearlube is stable, highly resistant to rancidity, completely edible.

For confectioner's coatings with better eating, keeping and handling qualities. Insures optimum viscosity without tackiness or greasiness. Insures gloss and longer shelf life.

W. A. CLEARY CORPORATION

Manufacturing Chemists

NEW BRUNSWICK, N. J. . SKOKIE, ILL. . BELLEVILLE, ONTARIO, CANADA

Emulsifiers

Modifiers Stabilizers

Condensations of five of the papers presented at the PMCA Production conference begin on this page. Two papers are published in full elsewhere in this issue. Our last issue carried three papers in full, and our next issue, which will complete our report of this meeting, will publish two more.

Enzyme Produced Flavors from Milk Fat Merle G. Farnham, Dairyland Food Laboratories, Inc.

Dr. John H. Nelson, Dairyland Food Laboratories, Inc.

Dr. A. R. Kemp, Dean Milk Company

Lipase enzymes from different sources release fatty acids from natural fat in a characteristic pattern or ratio. Particularly flavored blends of fatty acids result from the action of oral lipases on milk fat. Chromatographic techniques have been developed to separate and measure the relative amounts of the four most flavorful fatty acids, butyric, caproic, caprylic and capric. Data obtained by chromatographic method which illustrates the occurrence of these four flour flavorful fatty acids in lipase modified milk, cocoa bean fractions, and finished milk chocolate coatings are presented. The most significant sources of flavorful fatty acids in milk chocolate coating ingredients are lipase modified milks. Judges, in general, preferred the milk chocolate coatings containing the higher fatty acid levels.

Bulk Sugars - Dry and Liquid Edward Meeker, The American Sugar Refining Co.

Though there are several reasons for changing from bagged sugar to bulk, cost savings are by far the greatest. These cost savings are the result of; sugar price of bulk over bagged, labor costs in handling, better usage of storage space, improved sanitation and reduced sugar losses. In addition, great flexibility in handling is a big advantage for bulk sugar.

Liquid sugars are now available in several grades in most of the important sugar using areas. Their usage however, is limited to an area near refiners or bulk depots, as the water in the sugar is charged freight at full sugar rates. Sugar and corn syrup blends are now available in some areas, and their acceptance is expected to increase gradually.

The growth in use of bulk sugar has been phenomenal, as not only very large users, but many medium and smaller users are finding it profitable to install this equipment. Bulk dry may be shipped in rail cars, bin trucks and unit containers. A new method is by truck with self-contained blower system for unloading direct to users tank. A van type trailer is being tested that may handle any dry cargo one way, and bulk sugar in return.

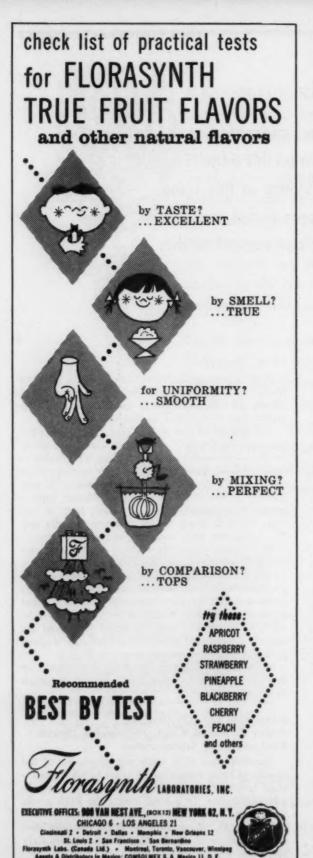
Basic sugar conveying systems may be all mechanical, all pneumatic, portable bin types or any combination of these. The choice of system depends on many individual factory conditions, and each factory should be very carefully studied so that the system will most nearly fit its particular needs. All types have been used for many years, and are entirely dependable, providing proper care is given to installation and maintenance.

No bulk sugar system, whether it be liquid or dry granulated, will "run itself", and it is foolish to think otherwise.

Precautions and Afterthoughts Robert C. Stanfill, Chief, Philadelphia District Food and Drug Administration

Manufacturers must know the provisions of the Food and Drug legislation in order to take precautions necessary to market foods which are safe and wholesome. To a large extent the FDA works through the medium of the label. This label should tell the truth, as to what is in the package and exactly how much. It should tell this in plain sight and plain words.

Any manufacturer is welcome to visit the FDA



office, and discuss, in confidence, any problem or condition falling within the interests of this regulatory body.

Violations of the law usually occur under these conditions; when management becomes too remote from processing operations, human error in carrying out sanitation duties, neglect of FDA legal requirements through lack of clear responsibility, and a very small proportion of deliberate chislers.

The FDA is much happier in prevention than in prosecution, and bends every effort to acquaint processors with the requirements of the law, and how they can comply with it.

Public Health and Food
Dr. Walter L. Obold,
Department of Biological Sciences
Drexel Institute of Technology, Philadelphia

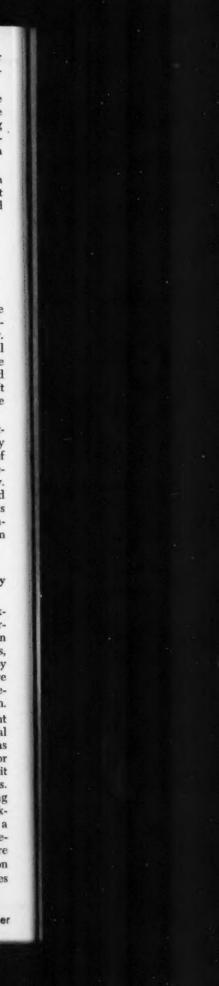
Three important trends in the food industry are (1) The growth in population, resulting in the necessity of a long range growth in the food supply. (2) The growing use of advanced technological processes and new ingredients. The span of time between discovery and use of new processes and ingredients has shortened drastically. (3) The shift to factory processed foods which has changed the former close relationship of producer-consumer.

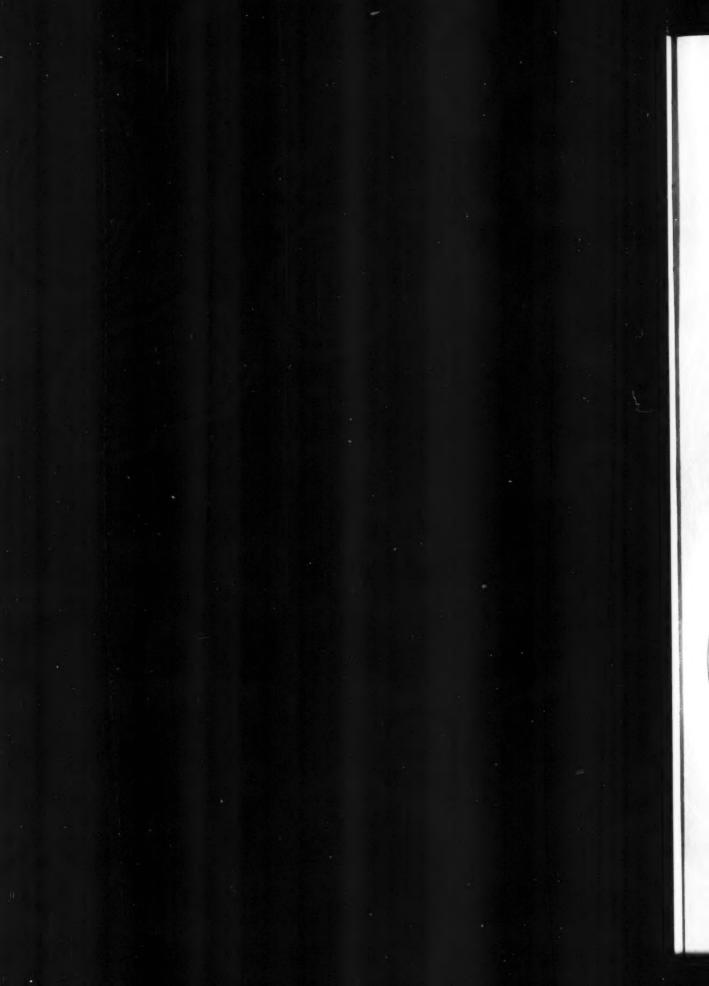
These three trends have made of great importance the concept of public health as a responsibility of the food producer. The consumer's concept of pure food are embodied in the four ideals; wholesomeness, safety, palatability and nutrient quality. It is up to the food processor, through the advanced use of scientific techniques of laboratory analysis and control, to provide these qualities that consumers expect, and have the right to receive, in their food.

Silacones – Processing Aids for the Candy Industry N. C. Foster, Dow Corning Company

Silacones are more accurately called polysiloxanes, a chemical hybrid part organic, part inorganic. Through molecular manipulation they can be in the form of clear liquids, greases, resins, rubbers and coatings. They are characterized by their chemical stability, resistance to temperature extremes, resistance to chemical attack, non-adhesiveness, defoaming ability and dielectric strength.

Its non-adhesive character is the most important in its uses in candymaking. It is used on metal equipment exposed to sticky substances, such as cutting knives and cooling trays, on heating or cooling coils or surfaces. In these applications it remains on the surface longer than other lubricants. Silacone treated paper is often used for dipping paper, and in packaging applications where sticking is a problem. A resinous product is used as a pan coating for release of sticky products. Its defoaming properties are used to some extent where this is a problem, and the methods of application are varied according to the particular circumstances of the user.



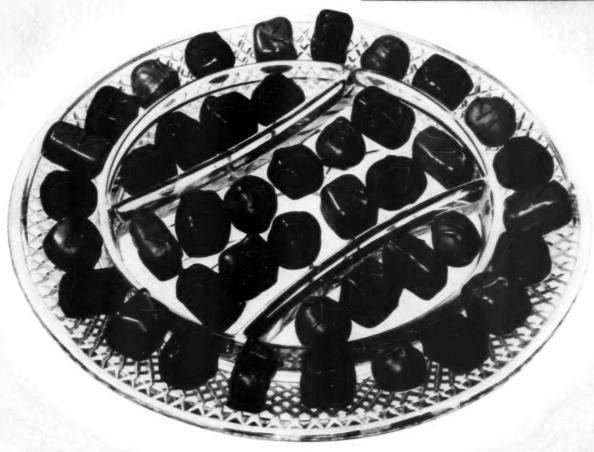


For your fine candies

quality Chocolate Coatings

To complement your fine candies -Ambrosia FOOD OF THE GODS quality Chocolate Coatings -Milks, Vanillas, Bitter Sweets, and Fondant types.





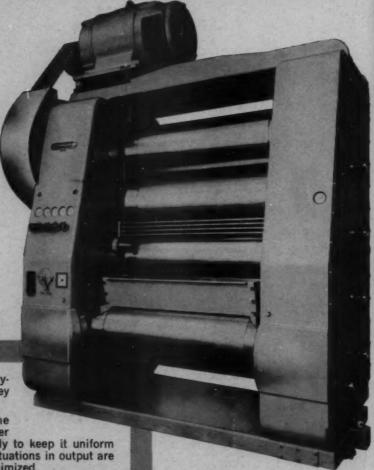
ONLY BUHLER TODAY

HIGH CAPACITY

BUHLER FIVE ROLLER MILL

for CACAO and CHOCOLATE PASTES

the features others will give tomorrow



Type SFG-c

- Constant Roll Pressures Fully hydraulic regulation...once set they never need readjustment.
- Hydraulic scraper control. The pressure of the improved scraper blade is readjusted automatically to keep it uniform and the angle never varies. Fluctuations in output are eliminated. Wear on knife is minimized.
- Rolls Always Parallel. In cleaning, the attendant need only operate one switch to release and again to press.
 The exact service pressures always come into play.
 This saves time and enables one person to attend several roller mills.
- Buhler Rolls are World Famous for Quality, their excellent grip and their resistance to wear.

BUHLER BROTHERS, INC. (U.S.A.)
130 COOLIDGE AVENUE - ENGLEWOOD, NEW JERSEY

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Arthur Kunz, New Orleans, La.

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WRITE FOR LITERATURE





The use of glyceryl monostearate and related emulsifiers in candy

BY WILLIAM H. KNIGHTLY
Atlas Powder Company

t has been well established that the setting of a starch gel is at least primarily dependent on the crystallization or retrogradation of the A fraction of starch and with aging, the spontaneous aggregation of the B fraction. Recent work by Schoch (5, 16) has done much to establish the mechanism by which starch gels set and become more rigid on aging. The more recent work by Sterling (17, 18, 19) on strain-stress relationships and temperature is also noteworthy. Sterling's work indicates that perhaps the time honored "hot room" method of manufacturing starch gels may not be the most desirable, since crystallization of the starch proceeds most rapidly at 36°F.

As early as 1853, the French Chemist Boussingault (9) demonstrated that the increasing rigidity of bread, a starch system, was not due to a loss of moisture, as is believed by many today, but to some other phenomenon, since he was able to show that bread staled even when stored under condi-

tions such as to prevent moisture loss.

Lindet (20) in 1902 was probably the first to associate the increasing rigidity of a starch system on aging with retrogradation. He found that there was an increasing concentration of insoluble starch in bread on aging and postulated that this retrogradation (reversion to the original state) was due to a loss of moisture from the amorphous, partially gelatinized starch with subsequent regression to the less hydrated crystalline state.

Katz (6, 7, 8) as early as 1915, postulated that bread and starch pastes staled because the starch changed from one chemical form to another on

aging

The work of Schoch and his co-workers (5, 16, 22) has done a great deal to provide information on the actual causes of increased rigidity in starch gels. Schoch has studied the action of two distinct fractions of starch, which have been identified as the A and B fractions.

For over a century, it had been known that when starch was heated in water at a temperature just sufficient to cause moderate gelation, there would pass into the aqueous media a small amount of a polysaccharide material which differed from the remaining insoluble starch. This phenomenon was interpreted to show that starch was heterogeneous in composition, containing more than one carbohydrate substance.

Myer (10) discussed, on a theoretical basis, the fractions isolated by the leaching method. He thought that the smaller amount of soluble saccharide, known as amylose, was a linear long chain polymer of perhaps 300 glucose units. The residue, termed amylopectin, of swollen granules was depicted as being composed of branched chains.

Schoch (5) developed in his laboratory a means of separating the components of starch with high purity and without chemical degradation. The pasted starch is autoclaved to dissolve the granule structure, and then treated with one of the higher alcohols; the slurry is then allowed to cool slowly to room temperature. The linear fraction flocculates from solution in microcrystalline form. This fraction was termed by Schoch as the "A" fraction and corresponds to the linear polymer amylose. The larger, non-crystalline carbohydrate was termed the "B" fraction and corresponds to the branched chain amylopectin. It was found that corn starch is composed of 27% of the "A" fraction (linear) and about 70% of the "B" fraction (branched).

In work on the separated fractions of starch, Schoch has shown that the linear "A" fraction is soluble in hot water, but shows a strong tendency to retrograde to the insoluble state on cooling. He attributes this tendency to the fact that strong forces exist between the long linear molecules, due to the hydrogen bonding forces of the hydroxyl groups. When a hot solution containing 5% of the A fraction is cooled to room temperature, it immediately sets to an irreversible gel. The branched "B" fraction is soluble in water at concentrations of 5 to 10% and is stable in that the solution does not form the irreversible gel. Myers (10) has attributed granule organization to the association of the branched chains of the starch molecule. While this attraction between chains in the "B" fraction is not as strong as with the "A" fraction, the "B" fraction does have some degree of linearity due to the 20-30 glucose units in the branches and thus

a weak association is possible. When starch is heated in water, the energy of the heat overcomes the weak forces between associated branches, causing a relaxation and subsequent gelatinization or swelling of the granule. On cooling, the weak forces again cause a reassociation of the branches.

This information is of importance in the baking and confectionery industry, as well as other industries. Schoch and French (59) have attributed the staling of bread to the gradual aggregation over a period of time of the B fraction. This aggregation, which is reversible with heat has been termed "coacervation" by Schoch, to distinguish the phenomenon from the irreversible "retrogradation" of the A fraction. In the staling of bread, and presumably the staling of starch jellies, the retrogradation of the A fraction is not a factor in shelf life, since the A fraction is irreversibly retrograded during baking and thus cannot contribute to the increase in rigidity on aging. The relaxation of the weak forces of the "B" fraction on heating has been of practical importance, since it is a common practice to freshen bread and rolls by heating them.

During the past decade, it has been shown that certain surface active materials, in a manner not yet fully explained will inhibit the increase in rigidity of a starch system on aging. Schoch and French (5) in 1947 after finding that oleic acid markedly reduced the swelling power of starch suggested that a mono and diglyceride might have a similar effect and retard staling. Favor and Johnson (21) have shown that polyoxyethylene stearate will also inhibit the staling of bread. It logically follows then that surface active agents might impart the same inhibition of staling to starch jellies.

The first apparent work on the use of surface active agents in starch jellies was that of Martin and his co-workers (11) published in 1951. Martin concluded, after work over a period of years (12, 13, 14, 15) that the use of certain surfactants improved the keeping qualities of starch jellies. It was also concluded that the level of surfactant must be below certain limits, otherwise gelling was inhibited to a degree where the gel would not set up in a reasonable time for commercial production. It was also found that the time of adding the surfactant to the cook was critical, since in some cases, the jellies would not set if the surfactant was added prior to the cook. Data obtained at Southern Regional Research has demonstrated that improvement can be obtained with 0.5% surfactant (polyoxyethylene (40) stearate) based on starch weight, or only 0.06% based on total batch weight.

Work in our laboratory of a similar nature has shown that some surface active agents will greatly improve the keeping quality of starch jellies, to a greater or lesser extent depending on the surfactant used. Some surfactants apparently have no effect at all in inhibiting the hardening of the gel.

METHODS

The following formula and procedure was used throughout the study carried out in our laboratory:

Formula

Part A-Starch	(60 fluidity)	60.0	gms.
Water		275.0	gms.

Permit A to soak for 15-20 minutes.

Part B

Sucrose	250.0 gms.
Corn Syrup 43 Be'	250.0 gms.
Cream of Tartar	0.625 gms.
Water	275.0 gms.
Surfactant	q.s.
(add at	200°F. or 214°F.)1

Part C

Red Color	q.s
Flayor (Wild Cherry)	q.s

¹It was felt that better fluidity characteristics were obtained when the ester was added after the starch addition.

Procedure:

Place Part B in beaker, bring to a boil and add Part A slowly. Cook to 75% solids as shown by refractometer (about 220°F.). Remove the batch from the heat and add flavor and color. In some cases, the emulsifier was added before Part A; in others after. Cast into starch molds and place in drying room (110°F.) for 48 hrs. Remove the jellies from the starch and package (10-12/pkg.) in 300 MP heat sealing Cellophane. Sufficient jellies were prepared so that one package was used for each reading, to avoid opening and resealing the packages.

The jellies were evaluated weekly using the penetrometer and gelometer.

The following surfactants were included in this study:

1. Glycerol Monoester

from lard -Plastic, I.V. 65,

- 2. Glycerol Monostearate

 -Solid, I.V. \$2,
- 3. Glycerol Monostearate

 Solid IV 49
- —Solid, I.V. ♦2, 49% Total Mono 4. Glycerol Monooleate

-Liquid,

I.V. ca. 95,

49% Total Mono

- 5. Lactic Acid Modified
 Monopalmitate —Solid
- 6. Propylene Glycol Monostearate —Solid
- 7. Sucrose Distearate

 Solid

 8. Sorbitan Monostearate
- 9. Polyoxyethylene (20) Sorbitan Monostearate
- -Liquid 10. 50/50 Blend of 8 and 9
- -Plastic
 11. Polyoxyethylene (8)
- Monostearate —Plastic

 12. Polyoxyethylene (20)

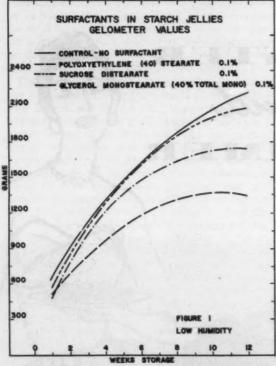
 Monostearate —Solid
- 13. Control-No Surfactant



DURKEE'S PARAMOUNT

LOUISVILLE, KENTUCKY . CHICAGO, ILLINOIS . BERKELEY, CALIFORNIA . NEW YORK, NEW YORK





The surfactants were evaluated at 0.1%, 0.25% and 0.5% based on the weight of starch. With the gels evaluated in this study, the concentration of surfactant calculated on the total batch weight, prior to cook is 0.005%, 0.0125% and 0.025%, respectively.

It has been found that the gelometer provides more accurate data than does the penetrometer. Penetrometer data were found to be affected by the skin of the gel and thus did not give a true picture of the rigidity of the whole gel.

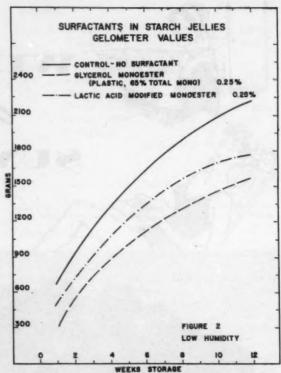
In general, all the surfactants were found to impart some improvement at all levels of concentration, with the exception of sucrose distearate which offered no improvement at any concentration.

At the 0.1% level, the ester providing the most significant inhibition of hardening has been found to be polyoxyethylene (40) monostearate. Glycerol monostearate also imparts good inhibition, being, at the 0.1% level, about half as efficient as the polyoxyethylene (40) monostearate.

In Figure I, which depicts the increase in rigidity obtained over a period of twelve weeks storage at low humidity as recorded with the gelometer, it can be seen that the starch jellies containing 0.1% P.O.E. (40) monostearate are, after 12 weeks storage, equivalent to the control jellies at 7 weeks. The sucrose distearate, as shown by the curve nearest the control, provides no significant improvement.

The incorporation of the other esters evaluated in this study does not appear to be practical at the 0.1% level, since improvements obtained are small.

At the 0.25% level, several surfactants appear to offer promise. A plastic glycerol monoester, produced by the transesterification of lard with glycerine and having a concentration of 65% total



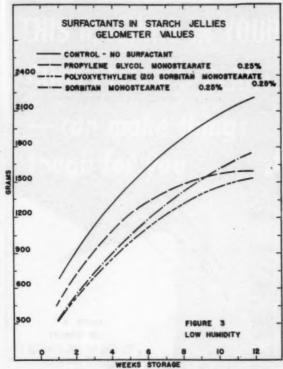
monoglycerides, has provided good inhibition. (Figure 2). After 12 weeks storage at low humidity, the starch jellies containing 0.25% of the ester are about equivalent in softness to the control jellies at 5 weeks. In this respect, the glycerol ester at this concentration is equivalent to the polyoxyethylene (20) monostearate at 0.1%. A lactic acid modified monoester, also depicted on this slide (middle curve) has shown significant inhibition of hardening.

Propylene glycol monostearate, sorbitan monostearate and polyoxyethylene (20) sorbitan monostearate (Figure 3) have also provided good inhibition at the 0.25% level, based on starch, and appear to be equivalent to the glycerol ester of lard in this respect. Both sorbitan esters appear very slightly more efficient than the propylene glycol esters, up to a period of 9 weeks, at which time, differences, if any, are slight.

At the 0.25% level, sucrose distearate, (Figure 4) as at the 0.1% level, does not inhibit the hardening of the starch jellies, and indeed, the jellies are somewhat harder after four weeks than the control. It is not known whether the sucrose ester actually accelerated the hardening of the jellies or whether the increased rigidity is due to the physical presence of the ester. The latter is suspected, since the ester itself has an extremely high melting point relative to more conventional esters.

A 50/50 blend of sorbitan monostearate and P.O.E. (20) sorbitan monostearate, as shown by the lower curve in Figure 4 does offer some improvement, but does not appear to be as efficient as the single esters previously mentioned at equivalent concentration.

Glycerol monostearate offers some improvement, as shown in Figure 5, however differences due to monoester content of the esters are not apparent.



It can be seen that the ester containing 65% monoglyceride may be slightly more firm than the ester containing 49% monoglyceride. However it is probable that the slightly increased hardness, if real, is due to the increased physical hardness of the higher monoester material, and that perhaps, the higher monoester material will be a better choice, since less total ester would be required to provide equivalent monoester concentration, thus reducing the physical hardening effect of the ester itself.

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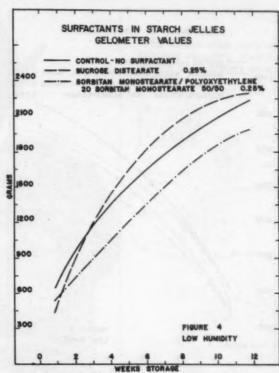
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Polyoxyethylene (40) monostearate has been included in this figure for comparison purposes, and again appears to be quite efficient in inhibiting the increasing firmness of starch gels. However, better results were obtained at the 0.1% level with this ester than at the 0.25% level in this study, for reasons which we are not able to explain at this time. Martin (12) has pointed out that in some cases, higher concentrations of an ester have actually accelerated the setting up of a gel.

It does not appear that proportional improvements can be expected by increasing the concentration of the ester to 0.5%. As shown in Figure 6, results obtained with previously mentioned esters are not superior to data obtained at lower levels of surfactant concentration. The data presented in Figure 6 were obtained on gels to which the ester had been added prior to the starch. One would expect greater shelf life, but such is not the case.

At the 0.5% level, the jellies were almost invariably too soft on removal from the starch for commercial production, and in many cases, did not set up at all. This same effect was noted whether the surfactants were added prior to or after the starch.

This data obtained in this study have indicated that the commercial glycerol monoester will greatly reduce the tendency of starch jellies to harden



during shelf life. The optimum level of usage appears to be about 0.25% based on starch weight, or based on total batch weight, 0.0125%.

Polyoxyethylene (40) monostearate appears to be more effective than the glycerol esters, since excellent improvement can be obtained at a level of 0.1% based on starch weight.

Sucrose distearate does not appear to offer any improvement over control jellies. From these data, it may be concluded that it has no effect on inhibiting the coacervation of starch systems.

These data suggest that some surface active materials may act upon both the A and B fractions of starch, since the esters not only decrease, the rate of gel firming, but also inhibit, at certain concentrations, the "setting" of the gel. Gel setting is usually attributed almost wholly to the presence of the A fraction.

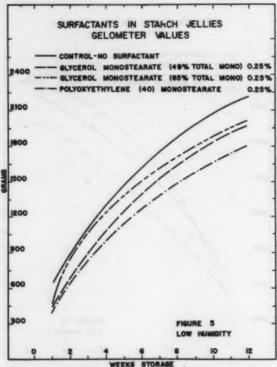
These data also suggest the use of surfactants in other starch confectionery systems, as for example, licorice.

CARAMELS

Additional work has been carried out on the use of glycerol monostearate and related esters in caramel production. It has been known for some years that the inclusion of glycerol esters at low concentration (0.5 to 1.0%) will improve the cutting characteristics of caramel, as well as inhibit wrapper sticking and improve chewing characteristics by reducing the tendency of the caramel to stick to the teeth. It was decided to investigate the relative efficiency of various esters in this respect, so as to establish the optimum type and concentration of ester for commercial practice.

PROCEDURE:

Two types of caramel, high and low cook, were



evaluated in our study.

Vanilla, Imit. Conc.

"Low Cook" Caramels

The ordinary or low cook caramels were prepared according to the following formula:

Corn Sugar, 43 B'e	12.0	lbs.		
Sucrose	8.0	lbs.		
Cream (Reconstituted,				
20% fat)	4.0	lbs.		
Vegetable Fat, 95°F. M.P.	1.5	lbs.		
Carrageenin (Stabilizer)			0.33	ozs.
Surfactant	q.s.			
Evaporated Milk	8.0	lbs.		
Salt			1.0	OZ.

Corn syrup, sucrose, cream, fat, stabilizer and surfactant were heated to boiling with agitation. The milk was then added and the mixture cooked to the stiff ball stage, approximately 244°F. The heat was then turned off and salt and flavor were stirred into the batch. The batch was then poured onto a marble slab, cooled and cut. The caramels were then machine wrapped, using MSD 52 heat sealable cellophane. The caramels averaged 11% moisture, 11.7% fat and 7.0% milk-solids-not fat.

The following surfactants were evaluated in the caramels at levels of 0.5% and 1.0%.

Glycerol monostearate, 65% monoester content Glycerol monostearate, 49% monoester content

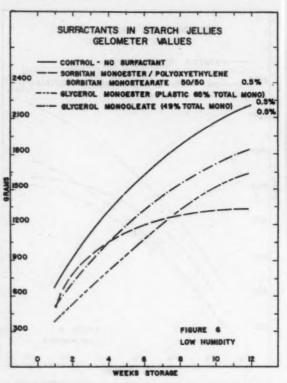
Glycerol monooleate, 65% monoester content Glycerol monoester of lard fatty acids, 65% monoester content

Glycerol monoester, distilled, 98% monoester content (lard) I.V. \$2

Sucrose distearate

Lactic acid modified glycerol monopalmitate Sorbitan monostearate

Polyoxyethylene (20) sorbitan monostearate

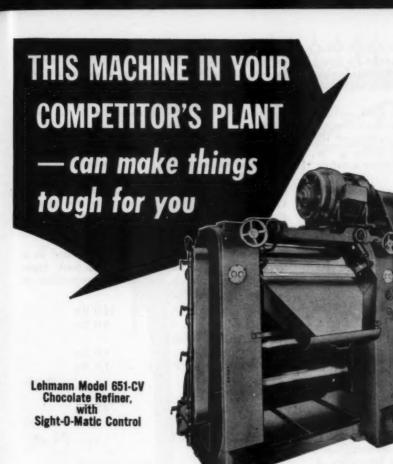


RESULTS

All of the esters evaluated in this study were found to improve the characteristics of low cook caramels, at both 0.5% and 1.0%, some to a greater extent than others.

When evaluating the cutting properties of the caramels, it was found that all of the glycerol esters imparted exceptional improvement. On a scale of 1 to 10, with 10 the highest obtainable score, subjective evaluation of the control gave it a score of 7. All of the caramels containing glycerol esters, at both 0.5% and 1.0% were rated at 10. The caramel containing sucrose distearate at a level of 0.5% received a rating of 10, but at a level of 1.0%, the ester was found to impart some stickiness and the caramel received a rating of 8. Results obtained using 50/50 blend of sorbitan monostearate and P.O.E. (20) sorbitan monostearate were not as promising as those obtained with the glycerol esters. At a level of 0.5%, the blend provided little or no improvement as regards cutting characteristics and the caramels received a rating equivalent to that of the control, 7. Increasing the concentration to 1% increased the rating to 9.

At cutting, the surface of the caramels was examined for crust formation. In general the harder glycerol monostearates were found to impart a heavier crust than other esters, but at the 0.5% level, the caramels were not significantly different from the controls in this respect. At the level of 1%, the caramels containing the 3 types of glycerol monostearate were rated at 5, as compared with the control at 7. Caramels containing glycerol monooleate received a rating equivalent to the control (7) at both levels of use, while the caramels containing the glycerol monoester derived from

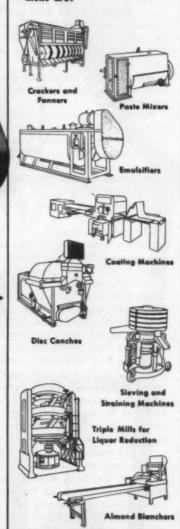


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COAST-TO-COAST SERVICE

Moore Dry Dock Company Oakland, California Lammert & Mann Co. Chicago 12, Illinois J. M. Lehmann Co., Inc.-Lyndhurst, New Jersey lard were found to have only a very slight crust at 0.5% and received a rating of 9. At the 1% level, however, the caramels made with the latter ester were rated at only 5, due to considerable crust formation.

The sucrose ester imparted very good surface characterisites at the 0.5% level, and the caramels containing it at this level received a rating of 10. However the surface was somewhat sticky at the 1.0% level and the caramels were given a rating of 8.

Both sorbitan esters were found to improve surface characteristics, with little or no crusting at either level.

Perhaps the greatest overall improvement was that obtained with the lactic acid modified monoglyceride. The caramels containing this ester had a dry surface with no crust at the 1.0% level and only a slight crust at the 0.5% level. At cutting, these caramels were found to have excellent characterisites at both levels (Rating 10) and there was no tendency for the caramels to stick to the wrapper.

The control caramels were found, as expected, to have a slight tendency to stick to the wrappers. The caramels containing glycerol monooleate were found to show some slight wrapper sticking at the 0.5% level, and those containing the sorbitan ester blend were found to exhibit some sticking at both levels. No wrapper sticking was evident with any of the other batches of low cook caramel.

The caramels were evaluated for chewing characteristics both organoleptically and by means of the Knife Test. The knife test is the candy makers method of evaluating body; stickiness or gumminess tends to hold up the progress of a knife blade when the caramel is cut. It is thought that results obtained by means of the knife test should correlate closely with the tendency of the caramel to stick to the teeth.

As with previous tests, the inclusion of surfactants greatly improved the caramels as regards tendency to stick to the teeth, whether measured organoleptically or by means of the knife test. Least improvement was obtained with the sorbitan esters blend. Whether used at the 0.5 or 1.0% level, caramels containing the sorbitan esters were found to be only slightly better than the control in reducing the tendency of the caramels to stick to the teeth. The control received a rating of 1 on the 1 to 10 scale, with the sorbitan ester blend receiving ratings of 2 and 3 at the 0.5 and 1% levels respectively. All of the glycerol esters imparted good anti-sticking properties, with greater improvement generally being obtained at the 1.0% level. Caramels containing glycerol monooleate received a rating of 3 at the 0.5% level, but were rated at 6 on the arbitrary scale at the 1.0% level. Caramels containing the remaining glycerol esters received a rating of either 5 or 6, with the higher rating generally reserved for those containing 1.0% of the esters. The lactic acid modified monoglyceride and the sucrose distearate were essentially equivalent to the conventional monoesters in reducing the tendency of caramels to stick to the teeth.

There appears to be a good correlation between the practical Knife Test and organoleptic results. Usually, a caramel containing a surfactant will receive a higher score when evaluated by means of the Knife Test than when evaluated organoleptically. However, the differences are of the same order.

SUMMARY

These data indicate that with low cook caramels, greatest overall improvement is to be obtained with the lactic acid modified glycerol ester at the 1% level of concentration, followed by the sucrose distearate at 0.5%. The plastic glycerol ester at 0.5% and glycerol monooleate at 1% are also quite promising.

The same surfactants were also evaluated in a second series of caramels, of the "high cook" type. The following formula was used in preparation of these caramels.

Corn Syrup, 43 Be'	12.0	lbs.		
Sucrose	8.0	lbs.		
Cream (Reconstituted,				
20% fat)	4.0	lbs.		
Vegetable Fat, 95°F. M.P.	1.5	lbs.		
Carrageenin			.33	ozs.
Surfactant	q.s.			
Evaporated Milk	4.8	lbs.		
Salt			0.9	oz.s
Vanilla (Imit. Conc.)			0.8	oz.s

PROCEDURE:

These caramels were prepared as previously outlined for the "low cook" caramels, except that the batch was cooked to the "force crack" stage, approximately 256°F. Based on the formulation, the composition of these caramels is: Moisture 8.0%, Fat, 11.5% and milk solids-not-fat, 5.1%. Prior to cutting, these caramels were allowed to remain overnight at 100-105°F. prior to cutting.

Results obtained with high cook caramels were essentially the same as those obtained with the low cook caramels. None of the caramels, including the control showed any evidence of sticking to the wrapper, although the control was sticky at the cutting machine. All of the glycerol esters, including that modified with lactic acid, provided good cutting characteristics; all receiving a rating of 10 with the exception of the caramels containing glycerol monostearate (65% total mono) at 0.5% which were thought to be slightly tough at cutting and thus received a rating of 8.

Only fair results were obtained with the caramels containing the sorbitan ester blend, which were slightly sticky at cutting. The caramels containing the sucrose distearate were considered very poor, and were worse, in fact than the controls. Those caramels containing 1.0% of the sucrose ester were considered poorer than those containing 0.5% of the ester and were found to exude fat at cutting.

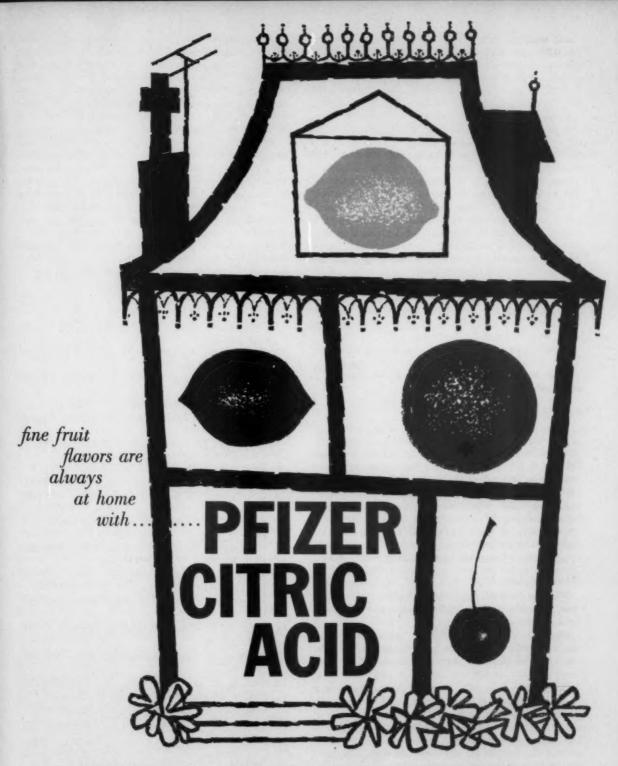
Slightly higher ratings, as might be expected, were received by the high cook caramels containing surfactants, than were received by the low 1

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cook caramels containing the same concentration and type of surfactant, as regards tendency to stick to the teeth.

Again, the incorporation of a surfactant was found to reduce the tendency to stick to the teeth in all cases, to a greater or lesser extent depending on the type and concentration of emulsifier used. All of the glycerol esters, the lactic acid modified ester and the sucrose ester were found to be about equivalent in this respect. In general, the caramels containing glycerol esters were given an arbitrary rating of 7 when rated for tendency to stick to the teeth, as compared to the control with a rating of 1, at the 1.0% level. The caramels containing glycerol monostearate (65% monoester) received a rating of 5 at the 0.5% level, as did glycerol monooleate. Caramels containing the plastic monoglyceride (65 monoester) received a rating of 5 at the 0.5% level and 6 at the 1.0% level.

Least improvement in regards to sticking to the teeth as with the low cook batches, was again obtained with the sorbitan ester blends. At the 0.5 level, these caramels received a rating of only 3 and at the 1 level, 5.

Again, good correlation was obtained with the Knife Test, but as with the low cook caramels, slightly higher rating were obtained here than were obtained organoleptically.

SUMMARY

With high cook caramels, the most promising ester appears to be the hard, fully hydrogenated, glycerol monostearate of 49% monoester at both 0.5% and 1%. The lactic acid modified ester appears to be equivalent to this ester at the 0.5% level.

Glycerol monooleate at 1.0% and the plastic monoglyceride (65% monoester) at 1.0% also appear most promising.

The sorbitan ester blend and the sucrose distearate do not appear to offer promise in high cook caramels based on data obtained in this study.

MISCELLANEOUS

We will mention briefly at this time, some other uses for surface active agents in the confectionery field.

The use of certain emulsifiers, notably polyoxyethylene (20) monooleate, to make essential flavor oils water dispersible, has been known for some time.

Polyoxyethylene (20) sorbitan monostearate has been used at a level of 0.2% in coatings for panned goods. It has been found that the use of this ester not only reduces panning time by about 1/3 but also results in a more opaque coating, so that the centers do not show through. This action is due to an acceleration of crystal growth, and probably the formation of finer crystal structure.

We have recently carried out some work in our laboratory on the use of glycerol esters in peanut butter that may be of interest to those in the confectionery industry who use this product. In 1949 the British Columbia Research Council published work to show that glycerol monostearate and

polyoxyethylene (20) monopalmitate prevented the oil separation of peanut butter to which it had been added at a concentration of 1.5 to 2.0%. Our work has shown that, while the control peanut butter had seriously oiled-off after 10 days storage, those samples containing glycerol monostearate and polyoxyethylene (20) sorbitan monopalmitate have not oiled off sufficiently after six months storage to be measurable. None of the other esters evaluated thus far in this study have been as effective. The glycerol monostearates (49 and 65% monoester contents), evaluated at levels of 1.5 to 2% appear to be somewhat more desirable than the sorbitan ester, since the peanut butter produced with the sorbitan ester was judged to be slightly dry and crumbly in texture at equivalent concentration.

In conclusion, we wish to thank Mr. Herbert Knechtel, of Knechtel Laboratories in Chicago for his valuable assistance in the preparation and evaluation of the caramels.

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Consumer taste testing

BY WAYNE P. HANSEN, MBA

onfectionery companies normally conduct some type of taste testing before they introduce new flavors, modify ingredients, or change suppliers. In a great many cases, however, the testing is confined to "expert" testers, plant personnel, and executive officers. While such tests do give an insight into changes or additions and are necessary for preliminary findings, they fail to effectively evaluate the true market reaction to such moves.

Although professional opinions deserve consideration, the very nature of the discriminatory process inherent in such taste tests lends a certain amount of unrealism to the experimental process. The consumer mass which will ultimately decide in the market place the success or failure of a new blend or flavor, is also the main factor in determining whether the manufacturer earns a profit or sustains a loss when changes or additions are made.

It is realized that it would be impractical and very costly to conduct large surveys for every possible change in flavor ingredients or supplier sources. One solution to this problem of acquiring the unbiased taste reactions of a sample of the population has been formulated and used by a few of the larger confectionery houses. It is used when management considers the possibility of either changing a supplier source for a specific flavor ingredient, or determining to what extent a switch in a competitive brand's ingredients will have on its own comparable flavor's sales.

The marketing research manager is asked to con-

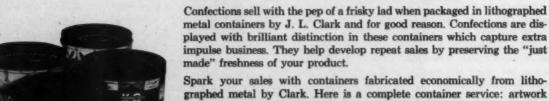
duct a routine flavor acceptance taste test among a representative group of consumers. To facilitate the survey and keep expenses within reasonable bounds, the tests are usually confined to one or a few metropolitan areas. Using the results of such a limited test as a projection of national taste preferences can be a dangerous device if the ultimate decision to be reached by such findings represents a major marketing change.

The sample size will number in the vicinity of 200 individuals. They may be equally divided among high school students and adults. The proportionate share of the market that any one firm represents among either group will naturally vary, but the minimum consistent with good sampling precedures dictates that at least 100 persons comprise each category. Adults and high school students are then numerically broken down on an equal basis according to sex. While grammar school students represent a good part of the confectionery market, they are generally avoided due to the fact that they do not possess the degree of maturity necessary to bring about measurable reactions in taste tests.

Because of the somewhat infrequent nature of consumer taste tests, an outside agency is generally used to supply the qualified interviewers. When possible the same interviewers are employed for a series of tests since they have been specifically trained and are experienced in this type of work. The agency supervisor sets up the mechanics of the actual test situation, according to the specifications from the manufacturer.



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Interviewing at a high school is the most practical method of covering the requirements of teen age testing, and the consentration there allows a large number of tests at minimum cost.

Adult respondents are selected on a random basis, unless stratification by age group is thought more consistent with the purposes of the test involved. The random process rules out any arbitrary selection of interviewees by the interviewer which might otherwise seriously affect the sample's validity. Rather than random selection within a large city, which is usually prohibitively expensive in time and travel, the random selection of a representative number of census tracts has been used with some degree of success. The tracts are proportionately weighted prior to the selection process according to the percentage of the total population that each constitutes.

The interviewer travels the census tract in a certain designated manner covering every occupied dwelling so prescribed. Only adults are interviewed, and only those persons who have eaten a candy bar within the last two weeks. The sexs are alternated by dwelling according to a schedule in the interviewer's possession. Only one individual is interviewed in each family and this is pre-

ferably done alone.

The test samples must be very carefully prepared. But test flavors must be of the same weight and shape in order to eliminate any biasing effect that might otherwise be created. Of course, some tests may be specifically aimed at determining whether there is any significant choice among interviewees for one shape over another. In this case, all other features are held equal except the shapes that are being studied. In any analysis, only one factor is ever varied, with all other elements being held constant for both test samples. This is the only proper method of specifically determining the significance of any observed findings.

Plain identical wrappers are used to further remove any disposition to select flavor preferences on any but the single variable basis originally conceived for such testing. The samples must be aged a period to compensate for normal delay between shipping from the factory and consumption.

The actual test situation is nearly identical for both adults and teen-agers. The respondent is hander a sheet with lists two identical scales of value and a coded bar is assigned to each scale. A glass of water is available to wash out the taste of the first bar before testing the second. The respondent is asked to rate each bar according to the value he or she thinks it represents as listed on the scale assigned to each bar.

After each bar is rated on a numerical scale, interviewees are asked to comment upon each of the test bars sampled. This helps to bring out valuable points of interest concerning both favorite and second choice bars that are not available from just scale ratings. Respondents are then asked as to actual preference, even though he might have rated one bar higher than the other on the scale. This is a check against the scale, and also what



relative versus absolute choices are made by the respondent.

The actual statistical measurement of the quantitative data obtained in any such taste preference survey should be made by competent marketing professionals. In most instances this responsibility would accrue to the marketing research manager of the firm involved in this market research. In all other cases an outside research agency would execute the entire survey, including the determination of the statistical significance of the results so obtained by field interviewing. The true value of a market study of consumer taste preferences lies in the final analysis and evaluation of the raw data and subjective comments thus secured. The objectivity of the individual who writes the evaluative report will only be borne out to the degree that the interpertive findings adhere to the scientific method of investigation. The scientific approach inherent in sampling theory and measurement is the true benchwork of objectivity in consumer re-

. The cost of consumer preference taste tests will vary according to how much of the work is farmed out to a marketing research agency. For most confectionery manufacturers it may be more practicable for the entire operation to revert to an organization which is experienced in this respect. The small additional amount involved in such a procedure may be less costly, unless the analytical aspects are left in the hands of a full time research manager who conducts other types of marketing projects for management.

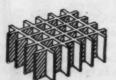
The expenses listed below are approximate, rough costs for preference testing which is conducted in the city where the home office is situated. Of course, this approach is not always feasible in small city areas or when specific markets are under consideration. Travel and communication expenses will occur for such out of city tests, but they will be in line with such costs normally associated with other business projects conducted in distant markets.

- A. Setup costs of a non-recurring nature. \$2,000
 - 1. Design of the questionnaire
 - 2. Writing interviewer instructions
 - 3. Pre-testing of questionnaire and instructions
 - 4. Establishment of appropriate test area controls
 - 5. Formulation of significance levels and analytical benchmarks
 - 6. Determination of control procedures for administration of tests
 - 7. Typing of masters for interviewer instructions and questionnaire forms

These costs when amortized over a number of tests will be reduced greatly per test conducted. It is therefore wise to retain the same research agency for each test, unless management feels some dissatisfaction with the results obtained in initial surveys.



"LINT FREE" **U-Boats**





"LINT FREE" Base Cards, Dividers, Layers and In-

"LINT FREE" Preassembled nest partitions made on automatic machinery

REE" Chocolate & Coated Boards

All items either plain or H.T. Non Stick Greaseproof Treated. Available in pure white food board, glassine laminated, silicated solid wood pulp board, vanillin and antioxidant treated chocolate board, colored board and greaseproof laminated board. Base cards, trays, and boats for automatic wrapping equipment. Samples and estimates promptly given.

See us at Booth #5, NCA Exposition.

URNANE PAPER COMPANY

1510 N. KOSTNER AVE., CHICAGO 51, ILL. WRITE OR CALL COLLECT CAPITOL 7-5300 g



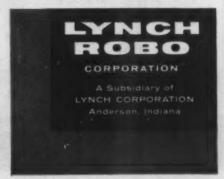
FORM, FILL, SEAL AUTOMATICALLY PILLOW-PACKAGING CUTS COSTS

Does your product belong in this picture? It does if automatic packaging can save you money. Doesn't matter whether you package solids, powders, granules

or liquids...Robo-Wrap heat seals them in a single or double wall of cellophane, paper, polyethylene, Foil Laminates, Mylar or Saran. Hand-overhand method forms, fills and seals packages from a continuous roll for highest efficiency.

Robo-Wrap changes package size quickly, too. Write for booklet that gives facts on low maintenance and higher efficiency.





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1460 Chestnut St. Hillside, New Jersey.

Preference Testing of 200 respondents

- B. Test aspects usually handled by an outside agency\$400
 - 1. Supplies interviewers and a supervisor, plus expenses
 - 2. Screens completed questionnaires
 - 3. Pays for gratuity to school
 - 4. Returns completed questionnaires
 - 5. Sets up test area and contacts school
- C. Company supplies these items
 - 225 questionnaire forms (they may be run by the agency, also)
 450 test sample bars
- D. Conversion of the raw data to a meaningful report\$600
 - 1. Tabulation of the questionnaire re-
 - 2. Statistical evaluation of the tabulations
 - 3. Interpretation of the statistical findings
 - 4. Recommendations based on the interpretation
 - 5. Presentation to management
 - 6. Followup if warranted or desired by management

Where a truly important decision has to be made which may cost a confectionery manufacturer many thousands of dollars if the choice proves to be a wrong one, a test of this type is cheap insurance against a tragic loss of sales and earnings.

A great deal of stress has been placed in this paper on field interviewing and survey procedures. The actual measurement of survey results has been omitted because of the complex nature of the subject. It is felt by the author that when the "mystery" of actual consumer taste testing in the field has been removed, company management will have a greater understanding and feeling for the use of such techniques to scientifically evaluate new ingredients and flavors. Only through such a means will confectionery firms achieve a greater degree of success in the introduction of new candy items.



Write for brochure with prices: Cooper Paper Box Corp., Dept M, Buffalo 10, N. Y.

For MAXIMUM PROTECTION and ATTRACTIVENESS

\$400

\$600

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Sweetone Paper Products meet every requirement for complete protection of confectionery products . . . at the same time improving the interior appearance of your packages. We have full facilities for cutting, dieing out and embossing to your specifications.

Write Dept. C for samples to your specifications and/or literature on Sweetone products.

CANDY BOX PADDINGS

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DIE CUT LINERS
PARTITIONS

LAYER BOARDS BOATS AND TRAY ROLLS

REPRESENTATIVES IN PRINCIPAL CITIES



GEORGE H. SWEETNAM, INC.

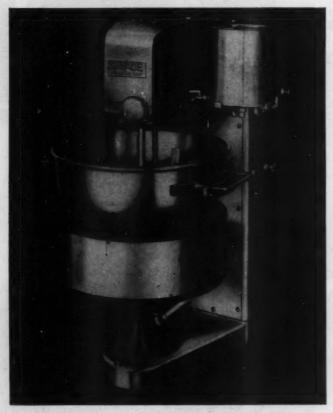
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SAVAGE LATEST FIRE MIXER

MODEL S-48

Thermostatic Gas Control-Variable Speed



The Savage Latest Fire Mixer, Model S-48, is Streamlined and Sanitary and has many new features and conveniences:

Automatic Temperature Control
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Copper Kettle 24" diameter 12½" deep or 16" deep

You can save labor and obtain uniform batches by setting the thermostat for degree cook desired. It cooks and mixes batches of caramel, peanut brittle, peanut candies, fudge, nougat, gum work, and with double action agitator is ideal for coconut candies and heavy batches.

Your inquiry invited

SAVAGE BROTHERS COMPANY

2638 Gladys Ave.

Chicago 12, Ill.

New Packages



Welch has added "Zip-Tape" to their foil packages. It makes the usually very tight heat-sealed foil wrapper easy to open.



Henry Heide has a new design treatment for their grained marshmallow bags. The 10 ounce bags are multi-color printed in a tropical design.



Bunte Brother Chase have added these two new packages to their Vue-Pac line. Both contain wrapped candies.

Helpful Books for Candy Plant Executives

Confectionery Analysis and Composition

by Stroud Jordan and Katheryn E. Langwill

This volume, first published in 1946, is still the only published reference work on the subject of confectionery analysis. It concerns itself with applicable data that covers composition of basic raw materials as well as that of the finished confections in which they have been employed.

Choice Confections

by Walter Richmond

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bags

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This new book contains 365 formulas for making two batch sizes, one for hand work and one for machine work. There are instructions for each batch, with suggestions as to the methods of coloring and flavoring for variety. A glossary is included, both of candy and chemical terms. All of the formulas are cross indexed, and a complete chapter is presented on chocolate.

How to Salvage Scrap Candy

by Wesley H. Childs

This booklet is a complete revision of the author's work "Modern Methods of Candy Scrap Recovery" published in 1943. A considerable amount of information has been collected since that time on methods and techniques of salvaging scrap candy. This booklet covers all types of candy, and gives many practical and economical ways of converting scrap candy into a useful form for re-use.

A Textbook on Candy Making

by Alfred E. Leighton

Here is a textbook where the reader can learn the basic fundamentals of candy making, the "how" and "why" of the various operations in non-technical terms. Particular attention is given to the function of raw materials, and why each is included in a formula.

The Candy Buyers' Directory The Directory of Candy Brokers

1957 Edition

The Candy Buyers' Directory is an alphabetical and classified directory of wholesale candy manufacturers giving information on what type of candy is made by each firm, and in some cases the type of packaging used. The Directory of Candy Brokers is a geographical listing of over 600 candy brokers giving the accounts that they handle, the territory covered and the number of salesmen.

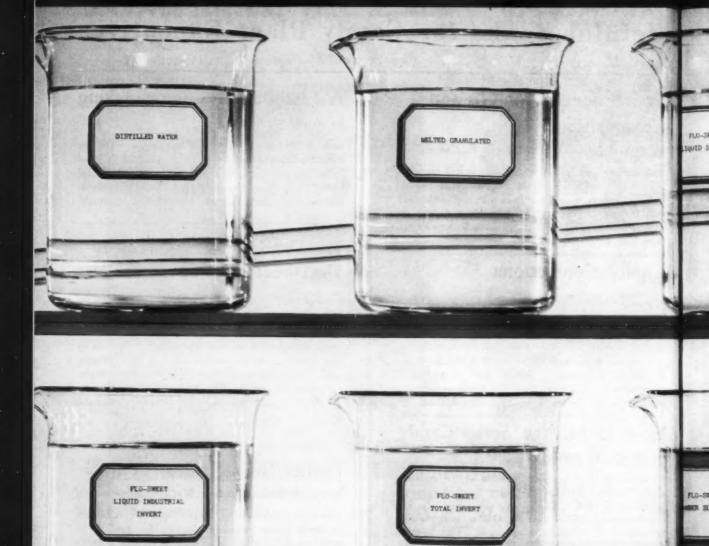
Profits Through Cost Control

by Frank Buese and Eric Weissenburger

This material deals with the problems of cost control in candy plants including planning for profit. The emphasis is on planning operations so that a profit will be made, and in early detection of those factors which will adversely affect profit.

☐ How to Salvage Scrap Candy \$2.00 ☐ Choice Confections \$10.00	Book Department The Manufacturing Confectioner Publishing Company 418 N. Austin Blvd. Oak Park, Illinois	Date
A Textbook on Candy Making	Gentlemen:	
\$6.00	Enclosed is my check for \$to	cover the cost of the books
☐ The Candy Buyers' Directory and The Directory of Candy Brokers	I have checked at the left.	
\$4.50	Name	. Title
☐ Confectionery Analysis and Composition \$6.00	Firm	
	Street	
☐ Profits through Cost Control	The state of the second	
\$2.00	City Zone	State

HERE'S PHOTOGRAPHIC PROOF



Color plates made from unretouched Ektachrome transparencies

FLO-SWEET

This unretouched photograph reproduces the colors of the eight principal types of Flo-Sweet as precisely as possible with modern printing techniques.

Compare, if you will, Flo-Sweet liquid sucrose with distilled water. You can hardly tell the difference! Because color is a good indication of sugar purity, this is one proof of the efficiency of Flo-Sweet's refining techniques.

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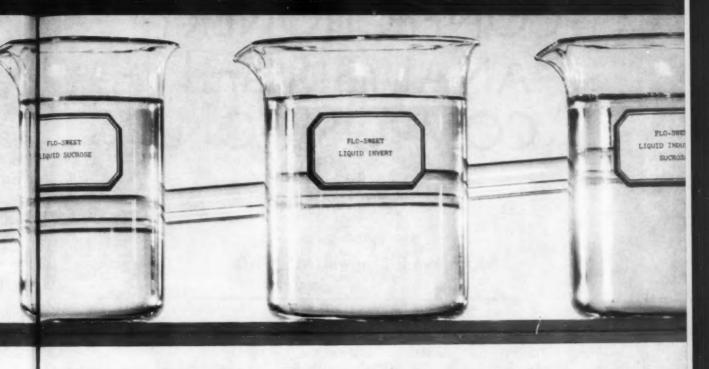
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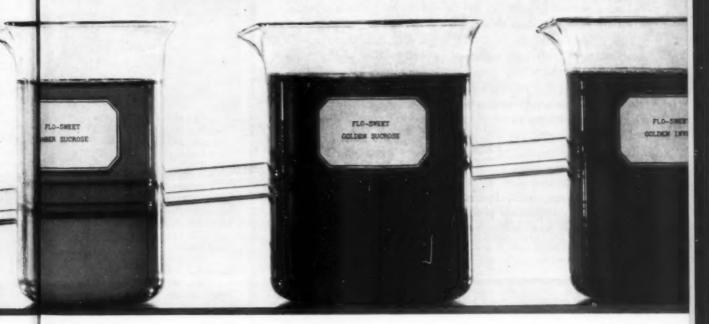
Note particularly the color of the melted granulated, shown at the same concentration of sugar solids as the liquid sucrose. This, we think, proves our contention that you can't get quality liquid sugar by mixing granulated with water.

REFINED SYRUPS

SERVING INDUSTRIAL SUGAR USER X

OF FLO-SWEET





Compare the melted granulated with the Flo-Sweet industrial sucrose, industrial invert, and total invert. Industrial types of Flo-Sweet actually show less color than the melted granulated. And up to now, granulated has been the accepted standard of purity!

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In Flo-Sweet amber and golden sugars,

the colors – and characteristic flavors – are deliberate and closely controlled. Note their clarity and freedom from haze.

The color of liquid sugar is, of course, only one indication of its quality. We welcome comparison of Flo-Sweet with any other sugar — liquid or granulated — on any basis whatsoever: color, taste, aroma, laboratory

analysis . . . or the practical test of how it performs in your own food products. You will discover what many Flo-Sweet users have long known: that Flo-Sweet has established exacting new standards of liquid sugar quality.

For this is true sugar quality - You can see the difference.

& SUGARS, INC. YONKERS, NEW YORK

SEREXCLUSIVELY FROM YONKERS, ALLENTOWN, DETROIT, TOLEDO

CONFECTIONERY ANALYSIS and COMPOSITION

By
Stroud Jordan, M.S., Ph.D.
and
Katheryn E. Langwill, M.S., Ph.D.

This volume, first published in 1946, is still the only published reference work on the subject of confectionery analysis. The pioneering work done by Dr. Jordan remains the standard in the field, making a second printing of his book necessary. This printing is in all respects identical to the first printing.

This volume concerns itself with applicable data that covers the composition of basic raw materials as well as that of the finished confections in which they have been employed.

In assembling this volume reference is made to applicable methods. Where satisfactory methods of analysis are of general knowledge they are incorporated by reference. All specially developed methods and procedures are incorporated in detail.

In the reconstruction of formulas from analytical data, certain basic assumptions must be made, and these are thoroughly explained. The second part of this volume deals with the several confection groups, and full discussion of particular analysis and calculation of composition problems of each group are discussed.

Use the order form below, your book will be mailed as soon as copies are available.

The Manufacturing Confectioner Pub. Co. 418 N. Austin Blvd. Oak Park, Illinois Please send me Confectionery Analysis and Composition by Dr. Stroud Jordan and Dr. Katheryn Langwill. I am enclosing \$6.00. Name Position Company Street City Zone State M361

Chapters

(Ch. 1) (Mineral Matter--Ch. 2) Sugars (Ch. 3) **Starches** (Ch. 4) **Proteins** (Ch. 5) (Ch. 6) Colloidal Materials (Ch. 7) **Nuts and Fruits** (Ch. 8) Acids (Ch. 9) Incidental Materials (Ch. 10) **Reconstructed Formulas** (Ch. 11) **Hard Candy** (Ch. 12) **Coated Candies** (Ch. 19) Sugar Cream (Fondant Ch. 13) (Ch. 14) Caramels and Toffees (Ch. 15) Marshmallow (Hard & Soft Ch. 16) Nougat (Ch. 17) **Gums and Jellies** (Ch. 18) **Coated Candies** (Ch. 19) **Appendix**

New Packages



Henry Heide has introduced "Pic-Me Pac" bag of assorted candies. About 40 individual packets, cello wrapped, within a 101/4 ounce cello bag.



R. G. Johnson of Los Angeles is packaging bubble gum in this "skin packaging" that is sealed on all sides for protection.



Philadelphia Chewing Gum is using these new window bags and boxes for their five flavor assortments of gum. The packages are printed in five colors.



says: "To increase profits on today's market we had to reduce costs. The Hayssen COMPAK offered the utmost in cost reduction."

The Hayssen COMPAK is a complete packaging department in a single machine. It does offer the utmost in packaging cost reduction and versatility. Several repackers are now packaging more than 60 varieties on the same COMPAK. Here's how you can increase your profit margins:

- Purchase your packaging material in Roll Stock, the absolutely cheapest way material can be purchased.
- The automatic COMPAK: forms, fills and seals your package without intermediate steps or hand labor.
- The COMPAK occupies a floor space of 3' x 5', and in many cases turns out the work of from 6 to 12 hand packers.

As it was so aptly put by Mr. Krempa of King Nut Co., Cleveland; "We paid for our COMPAK twice by not buying it sooner." Don't let this happen to you, where you're paying for a COMPAK and do not have it. Contact Hayssen TODAY!



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MANUFACTURING COMPANY . Dept. MC-6 . SHEBOYOAN, WIS. first in Automatic Packaging Since 1910

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New

Products

A new sealing and labeling machine for applying bag top labels has been developed. Using the jaw sealing principle, the machine feeds labels to the jaws, and when the bag



WE CAN HELP YOU "PRODUCTIONWISE"

Are you planning production of summer candies?

Are your current formulas in balance?

Do your candies prematurely grain?—

dry, ferment or mold?

Can your process be simplified, and your costs lowered?

Can you improve quality and maintain uniformity?

NULOMOLINE SERVICE . . . cooperating with manufacturers since 1909 . . . can be of service to you.

Discuss your problems with our practical-technical staff



Be Sure To Visit BOOTHS 54 and 55—
Confectionery Industries Exposition—July 7-10. Incl.
Civic Auditorium—San Francisco, California

Order direct or through your jobber-

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AMERICAN MOLASSES COMPANY

Manufacturers of Nulomoline® — Standardized Invert Sugar and Syrups
120 WALL STREET, NEW YORK S, N. Y.

300 East North Water St., Chicago 11, Ill. 400 No. Gayoso St., New Orleans 19, La.
NULOMOLINE, Ltd., 1461 Parthenais St., Montreal, Canada
PACIFIC COAST: 1300 West 3rd St., Los Angeles 17, Calif.

touches a vacuum switch, the bag top and label are folded into the jaws and sealed. A positive ejecting mechanism forces the bag from the sealer and onto a take-away conveyor.

For further information write; Doughboy Industries, Inc., New Richmond, Wisconsin.



A new electronic check weigher has been developed that can spot a one percent weight variation in packages at the rate of 400 per minute.

For further information write; FMC Packaging Machinery Division, 4900 Summerdale Ave., Philadelphia 24, Penna.

A booklet of articles on whiped candies has been prepared. Thirty eight articles are included taken from several business magazines from six countries. They all deal with the application of a whipping agent to candy manufacturing, and include formulas and manufacturing instructions.

For a copy write; Lenderink & Co., N. V., Schiedam, Holland.



A new carton forming machine has been developed that forms and heatseals poly coated cartons and trays. It can also form and glue non-coated blanks. Speeds are around 180 per minute.

For further information write; Peters Machinery Co., 4700 North Ravenswood Ave., Chicago, Ill.

FOIL ... FOR EXTRA SALES APPEAL

Bunch or Fold Wraps on Forgrove Models 6 and 26-D

Individually wrapped in bright, colorful foil, your chocolates, caramels...or even new gum balls...have extra sales appeal. Foil wrapping protects each piece, gives a merchandising "plus" to candy sold individually or in ready-packed boxes.

Both Forgrove Models 6 and 26-D wrap rounds, squares, ovals, crescents and rectangles in a variety of shapes and sizes. The Forgrove Model 6 bunch, tuck or fold wraps at speeds up to 180 per minute. It uses cellophane and waxed paper as well as foil, and allows for the

use of automatic feed depending upon the shape of the candy to be wrapped. Forgrove Model 26-D fold wraps or bunch wraps at a speed of up to 120 per minute. It will use cellophane or waxed paper in addition to foil, and can be equipped with electric eye registration.

For that little something to sharpen your selling edge, call your nearest Package representative. He will give you full details on the Forgrove Models 6 and 26-D, and the complete line of Forgrove candy-making and wrapping equipment.

PACKAGE MACHINERY COMPANY, EAST LONGMEADOW, MASS.

NEW YORK • PHILADELPHIA • ATLANTA • BOSTÓN • CLEVELAND • CHICAGO • KANSAS CITY DALLAS • DENVER • LOS ANGELES • SAN FRANCISCO • SEATTLE • TORONTO • MEXICO CITY Sole agents in the U. S., Canada and Mexico for Forgrove candy-making and wrapping equipment

PACKAGE

for June 1958 - 57

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bag jaws nechsealer r. write; Rich-

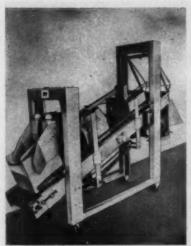
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Pet-Rav-



A portable case sealer has been developed that turns the glued case upside down using its own weight

LININGS

For corn sy: up liquid sugar, oils and other liquid ingredients 100% sanitary, prevents corresion. contamination, and greatly extends tank life. These coatings reduce maintanance time and expense substantially. We are experienced applicators of all types of Vinyl, Epoxy, Phenolic and Concrete coatings

NATIONAL COATINGS

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COLORED COATINGS

Add color to your package!

Bon bon coatings in pink, green, peach, yellow and white.

Nu Coat Bon Bon Company

4338 N. Western Avenue Chicago 18, Illinois to set the seal on the flaps. It handles a wide range of case sizes, and can be moved easily from one position to another.

For more information write; Standard Metal Products Co., 123 N. Racine Ave., Chicago 7, Ill.



A small automatic jaw sealer has been developed for sealing poly bags. It it a table top model, which is motorized to provide the correct pressure and dwell time for poly seals. The 12" sealing jaws are covered with Teflon strips. The machine measures 14" x 10" x 9" closed.

For further information write; Mercury Heat Sealing Company, Philadelphia 33, Pa.



An efficiency recorder has been developed that keeps a continuous and automatic record of a machines operating and down time, and number of times started and stopped, and of units produced. It will also keep a cumulative record of number of on or productive time.

For further information write; Gorrell & Gorrell, Westwood, New Jerseu.

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That's just how we're planning to make you feel at Booth 68 in the Civic Auditorium during your stay in San Francisco at the Diamond Jubilee Convention in July.

As far as news goes—news of cocoa and sugar, of stocks and commodities, of business in general and the world as a whole, we'll have our own special newswire installed, a quotation board too—and what's most important—an open phone direct to the complete facilities of our downtown office in San Francisco.

If you want a business home away from home, just remember Booth 68 at the Convention. As usual, all the help we can give you will be yours for the asking.

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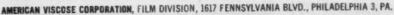


Lester Rosskam, Jr., Vice Fresident of Quaker City Chocclate and Confectionery Co., Inc., says:

For packaging economy, sales appeal and freshness control, we count on

AVISCO CELLOPHANE

Quaker City Chocolate and Confectionery Co., Inc. reports packaging machines for "Good and Plenty" operating at a whopping 98% efficiency with AVISCO cellophane. Major contributing factors to such remarkable performance are the body, rigidity and static-free characteristics of this film. Neatly formed overwraps of AVISCO cellophane add sales appeal to "Good and Plenty." But even more, cellophane is an essential part of Quaker City's quality control program—because its moistureproof property keeps the candy fresh. Add the low cost of AVISCO cellophane to these advantages and the result is total packaging economy. Let AVISCO cellophane do the same for you. Call your AVISCO salesman or converter representative.





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Just 2 People

and an

IDEAL WRAPPING MACHINE



Can Package 450
Caramels
Every

Yes—that's speed, but DEPEND-ABLE speed coupled with smooth, low-cost operation! Only 2 personnel required for this entirely automatic operation!

Minute

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Personal service to 183 jobbers, super-markets and department stores. Backed by 26 years experience in the confectionery field. We call on every account personally every six weeks. Candy is our business.

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Terr.: Kentucky, Tennesse, Alabama, Mississippi, Louisana

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PITTSBURGH 18, PA.
Confectionery Broker Representing
Manufacturing Confectioners
Since 1925
Territory: Pannayiwania excluding
Philadelphia.

Vair-E-Best Candies Entertains Girl Scouts

Vair-E-Best Candies of Detroit has been carrying out an effective community relations project for many years. The firm entertains a different group of girl scouts, 60 or more, every Monday afternoon after school. First, the girls see the chocolate dipping and the enrober, enjoying samples of the chocolates along the way. They then go to the boiling room to watch a batch of canes being run.

The high point of the afternoon is the cane-hooking contest. Each scout receives several still-warm canes and tries her hand at putting hooks on them. Big canes go as prizes to the girls who make the best hooks, and, of course, all the children can take their canes home to show family and friends. Howard Vair reports that the show takes about an hour and costs around \$20. The entertainment has proved so popular with the scouts that the store cannot accommodate all the reservations requested.

NEWSMAKERS

Continental Nut Company has purchased Upton and Williams, Inc., walnut processors, of Saticoy, California. Milprint, Inc. has named Walter J. Hullinger to the position of vice president and general sales manager. He joined Milprint in 1948 as a salesman. Hansel-Junior of Hannover, Germany, has established an office in Chicago at 1 North La Salle St., under the name of Otto Hansel Machine Company. Mr. H. H. Kruse is the service engineer in charge. Package Machinery Company has elected Lewis A. Curtis, formerly vice president in charge of sales, to president. He succeeds Donald H. Dalbeck, who was president of Reed-Prentice Corporation before its merger with Package. Roger L. Putnam, Ir., has been named executive vice president and J. Edwin Hanson has been named treasurer. Milprint, Inc., has formed a market research department. Paul Hultkrans, vice president, will head the department. Standard Packaging Corporation has acquired Johnston Foil Manufacturing Co. of St. Louis, Missouri. C. Robert Morrison, formerly head of his own firm, Mohawk Supply Company, has been appointed to the sales staff of the Lassiter Corporation. R. D. Webb & Co., is a new independent American company that has succeeded the former W. J. Bush & Co. Bush was an affiliate of an English firm of the same name. Ralph Hull, formerly with Schutter Candy Company as purchasing agent and sales representative, has joined the Ray Owens Brokerage Company as a vice president. The Walter Baker Division has appointed Gehrke Brokerage Company of Minneapolis to represent its bulk chocolate sales in Minnesota and North



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Stuckey's Features Free Picnic Area

Stuckey's at Abingdon, Virginia, has set up a free picnic area in the roadside store's parking lot. This facility attracts many people, especially family groups, and increases candy sales. The picnic area, which developed from the firm's desire to leave an attractive tree in the middle of a parking addition, consists of a grassy mound of earth secured by a retaining wall. A railing tops the wall, and flowers in planters provide color. Tables, benches, and the ever-necessary trash receptacle, along with the sign, "Free Picnic Area", painted on the wall facing the highway, complete the inviting picture.

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THE MANUFACTURING CONFECTIONER

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- . Candy Clinic
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418 N. Austin Blvd.

Oak Park, Illinois

Good Candy Deserves

glassineandgreaseproof



PAPER COMPANY
Rhinelander, Wisconsin
Subsidiary of St. Regis Paper Company

CANDY PACKAGING

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THE MANUFACTURING CONFECTIONER PUBLISHING CO.

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JUNE

Vol. 18, No. 3

1958



CROCKER BAG TOPS SELL MORE CANDY!

Which of these two bag tops will sell more of your candy . . . the limp, tired-looking, lightweight paper header?...or the sturdy, bright, fresh-looking Crocker bag top?

New Crocker thermoplastic heat seal bag tops use the finest glossy board. This heavier stock guarantees longer shelf life and a fresher-looking candy package.

And, to keep your production line rolling, your package has to look fresh to sell!

Find Out Today How Fresher-Looking—Better Selling—More Economical Crocker Bag Tops Can Be Your Best Salesmen—

H. S. CROCKER CO., INC.

PLANTS: SAN BRUNG + LOS ANGELES, CALIF. + BALTIMORE, MD SALES OFFICES: 720 MISSION, SAN FRANCISCO 2030 E 771, LOS ANGELES + 350 N. CLARK, CHICAGO 23 E. 2674, NEW YORK + ST. PAUL & 2474, BALTIMORE, MD. PORTLAND, ORE. * SEATTLE, WASH. + JACKSON, MISS. WINTER HAVEN, FLA - MINNEAPOLIS, MINN. * OMAHA, NEBR.



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Candy Clinic

The Candy Clinic is conducted by one of the most experienced superintendents in the candy industry. Some samples represent a bona-fide purchase in the retail market. Other samples have been submitted by manufacturers desiring this impartial criticism of their candies, thus availing themselves of this valuable service to our subscribers. Any one of these samples may be yours. This series of frank criticisms on well-known branded candies, together with the practical "prescriptions" of our clinical expert, are exclusive features of The MANUFACTURING CONFECTIONER.

Marshmallows; Fudge

Code 6B8 Marshmallows 10 ozs.—19¢

(Purchased in a department store, River Forest, Ill.)

Appearance of Package: Good.
Container: Cellulose bag printed in red,
white and blue. Name, etc., printed
in blue.

Marshmallows
Color—Pink: Good.
Texture: Slightly tough.

Flavor: Good.

Remarks: Marshmallows were in good condition but we suggest formula be checked as the marshmallows were not tender enough.

Code 6C8 Marshmallows 14 ozs.—23¢

(Purchased in a department store, River Forest, Ill.)

Appearance of Package: Good.

Container: Cellulose bag printed in red,

white and blue. Imprint of angel in red, white and blue.

Marshmallows
Color-White: Good.
Texture: Good.

Flavor: Good.

Remarks: One of the best marshmallows at this price we have examined this year.

Code 6D8
Toasted Coconut Marshmallow
16 ozs.—29#

(Purchased in a department store, River Forest, Ill.)

Appearance of Package: Fair.
Container: Cellulose bag, paper clip on
top printed in orange, blue and white.
Marshmallows

Coconut: Well roasted.
Texture: Slightly tough.

Taste: Good.

Remarks: Suggest formula be checked as marshmallows were tough. Suggest cellulose bag be printed in a bright brown color to improve the appearance of the package.

Code 6A8
Assorted Chocolates
1 lb.-\$1.45

(Sent in for analysis #4803) Appearance of Package: Good.

Container: Oblong box, one layer type.

Brown, name printed in drak brown;
imprint of tavern in brown. Cellulose
wrapper. Easter cellulose band in
colors.

Appearance of box on opening: Good.

Number of pieces: 34 Dark: 19 Light: 14

Foil wrapped: 1 Coatings: Dark and light.

Coatings: Dark and l Colors: Good. Gloss: Good. Strings: Good. Taste: Good.

Dark Coated Centers
Orange Cream: Good.
Vanilla Caramel: Good.
Opera Cream: Good.
Hard Candy Blossom: Good.
Vanilla Nut Cream: Good.
Chocolate Cream: Good.
Vanilla Cream: Good.
Nut Nougat: Good.
Chips: Good.

Buttercream: Good.
Lemon Cream: Poor flavor.

Light Coated Centers
Vanilla Nut Caramel: Good.
Cashew Cluster: Good
Nut Buttercream: Good.
Nut Nougat: Good.
Nut Crunch: Good.
Raisin Cluster: Good.
Vanilla Nut Cream Good.
Chocolate Paste: Good.

Foiled Cordial Cherry: Good.

Assortment: Good.

Remarks: The best assorted chocolates we have examined this year at the price of \$1.45 the pound. Very well made and of very good quality. Very attractive inside liner. Suggest a better grade of lemon oil be used.

Candy Clinic Schedule For the Year

JANUARY—Holiday Packages; Hard Candies
FEBRUARY—Chewy Candies; Caramels; Brittles
MARCH—Assorted Chocolates up to \$1.15
APRIL—\$1.20 and up Chocolates; Chocolate Bars
MAY—Easter Candies; Cordial Cherries
JUNE—Marshmallows; Fudge
AUGUST—Summer Candies
SEPTEMBER—Uncoated & Summer Coated Bars
OCTOBER—Salted Nuts; Gums & Jellies
NOVEMBER—Panned Goods; 1¢ Pieces
DECEMBER—Best Packages and Items of Each Type Considered
During the Year.

ner

for Better Marshmallows

the SAVAGE BEATER

. . . . IS YOUR ANSWER. The Savage latest improved sanitary marshmallow beater is constructed with stainless steel tank, shaft, paddles and breaker bars-100% sanitary. This beater is considered



standard by manufacturers. Built for strength and durability, it assures perfect manipulation of each batch. Hundreds of users in the United States and foreign countries prefer the Savage Beater for its economy in operation and performance in production, because it saves time, space, and operating cost. Four 200 pound Savage Beaters will supply a mogul for continuous operation.

THE FIRST COST IS THE LAST COST

- Unexcelled for volume and lightness
- Stainless construction—100% sanitary
- No corners for contamination
- Outside stuffing boxes—no leakage possible
- Maximum beating for volume
- Faster heat discharge from batch
- Creates volume suction of cold air
- Larger water jacket for quick cooling
- 6" outlet valve for quick emptying
- Less power needed with roller bearings
- Large two piece air vent-sanitary
- Direct motor drive
- Sizes available: 150 lb. or 80 gal. capacity

200 lb. or 110 gal. capacity

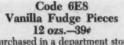
SAVAGE oval type marshmallow beater also manufactured with stainless water jacket, galvanized cast iron heads, paddles and breaker bars.

1855

SAVAGE BROS. C

2638 Gladye Ave.

Chicago 12, Ill.



(Purchased in a department store,

River Forest, Ill.) Appearance of Package: Good.

Container: Cellulose bag printed in cream, pink, brown and blue.

Fudge: Pieces are the size of a wrapped caramel, wrapped in printed foil. Color: Good.

Texture: See remarks.

Taste: Good.

Remarks: Piece is more like a grained caramel than a fudge. Not a good eating fudge. Attractive package.

> Code 6F8 Marshmallows 10 ozs.-21¢

(Purchased in a food shop, Oak Park, Ill.)

Appearance of Package: Good. Container: Cellulose bag printed in red, yellow, blue and white.

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Marshmallows

Color-White: Good. Texture: Very Good. Taste: Good.

Remarks: The best marshmallow of this type we have examined this year. Very well made and a tender texture.

Code 6G8 Coconut Toasted Marshmallows 12 ozs.-27¢

(Purchased in a chain drug store, Chicago, Ill.)

Appearance of Package: Good. Container: Cellulose bag printed in orange and white.

Marshmallow

Coconut: Well roasted. Texture: Good.

Taste: Good.

Remarks: The best toasted marshmallow we have examined this year. Suggest name etc. be printed in a bright brown instead of orange.

> Code 6H8 Assorted Nut Fudges 1 lb.-\$1.00 (Purchased in a candy store,

Oak Park, Ill.) Sold in Bulk

Fudges

Colors: Good. Texture: Good. Flavors: Good. Nuts: Good.

Remarks: The best home made fudge we have examined this year. Slightly high priced at \$1.00 the pound.

Code 618 **Novelty Marshmallow Package** 3 ozs.-29¢

(Purchased in a chain variety store, Chicago, Ill.)

Appearance of Package: Good for this priced package.

Box: Oblong shape, large cut out top. Printed in green. Overall cellulose

Marshmallow Pieces: Marshmallow pieces

are in the shape of large pieces of fruits in colors. Molding: Good.

Colors: Good. Texture: Good. Taste: Good.

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Remarks: The best marshmallow novelty package at this price we have examined this year.

> Code 6K8 Fudge Pie 2½ ozs.-15¢

(Purchased in a chain department store, Chicago, Ill.)

Appearance of Package: Good. Container: Round foil tray containing chocolate fudge. Cellulose square bag printed in yellow.

Fudge Color: Good. See remarks. Texture: Good. Taste: Fair

Remarks: Fudge looks dull and faded on top. Suggest more chocolate liquor be used to improve the flavor. A novel way to put up fudge but highly priced at 15¢ for 21/2 ozs.

Code 6L8 Vanilla And Chocolate Nut Fudge 1 lb.-79¢

(Purchased in a department store, Chicago, Ill.)

Sold in Bulk Fudge Colors: Good. Texture: Good. Flavors: Good. Nuts: Good.

Remarks: A very well made home made fudge and a good amount of nuts used. One of the best home made fudges we have examined this year.

> Code 5A8 **Assorted Chocolates** 1 lb.-\$1.49

(Purchased in a fancy food store, Oak Park, Illinois.) Appearance of Package: Fair.

Box: Long oblong shape, one layer type. White glazed paper. Top printed-Red and Gold. Cellulose wrapper. Appearance of Box on opening: Fair.

Number of Pieces: 30 Coating: Light chocolate.

Color: Good. Gloss: Fair. Strings: Good. Taste: Good. Centers

Vanilla Caramel: Good. Grape Cream: Sprill top good. Chocolate Fudge: Not a good flavor. Green Nougat: Good.

Buttercream: Good. Cocoanut & Choc.: Good. Choc. Cream: Good. Cashew Cluster: Good. Van. Cream: Good.

White Cream: Could not identify fla-

Glace Pineapple: Good. Pink Jelly: Could not identify flavor. Cordial Cherry: Broken. Butterscotch: Fair-lacked flavor.

Lemon Cream: Flavor not up to standard.

Peanut Cluster: Good. Orange Cream: Good.

Green Cream: Could not identify fla-

Choc. Cream: Good. Raisin Cluster: Good. Assortment: Poor.

Remarks: Assortment needs some hard and chewy pieces. Flavors need checking up. A number of creams had some undissolved sugar in them. Box is too large for a one pound assortment. Also box is cheap looking for this priced chocolates. If this box is going to stay on the market, the contents and box need revamping.

> Code 6M8 **Pecan And Coffee Truffles** 1 lb.-\$2.00 (Sent in for analysis #4803)

Appearance of Package: Good. Box: Oblong shape, one layer type, white paper wrapper printed in green stars. Box has a dark brown glazed paper top, name of crest embossed in

dark brown. Cellulose wrapper. Appearance of box on opening: Good. Coating-Light

Color: Good. Gloss: Good. Strings: Good. Taste: Good.

Center: Center is a chocolate paste, some with pecans and some flavored coffee. Color: Good.

Texture: Good. Coffee Flavor: Good. Nuts: Good. Number of Pieces: 40

Remarks A very good eating piece but highly priced at \$2.00 the pound. A neat looking box top and chocolates are very well packed.

> Code 6N8 Milk Chocolate Coated **Nut Meats** 1 lb.-\$1.39

(Purchased in a fancy food shop, Oak Park, Ill.)

Appearance of Package: Good. Box: Square, one layer type, printed in brown, white, pink and yellow. Im-print of nut meats in color. Cellulose wrapper.



FULLY APPROVED BY HEALTH AUTHORITIES.

The Standard Casing Co., Inc. 121 Spring St., New York 12, N. Y

Appearance of box on opening: Good. Coating-Milk Chocolate

Color: Good. Gloss: Good. Strings: Fair. Taste: Good.

Nuts: A partition of large square in each section has a large paper cup full of

Brazils: Good. Cashews: Good. Almonds: Good. Filberts: Good.

Remarks: The best box of milk chocolate nut meats we have examined this year at this price. Nuts were well roasted and had a good fresh flavor. Cheaply priced at \$1.39 the pound. Should be a good seller.



CANCER LIFE-LINE In factories, plants and offices across the nation, the line is busy. Through films, pamphlets, posters, exhibits and lectures, the life-line of cancer education is reaching a steadily increasing number of men and women in business and industry. Each year, more and more firms and corporations invite the American Cancer Society to present its life-saving program to their employees. All are concerned with the major threat which cancer poses. Last year, 245,000

Each year, more and more nrms and corporations invite the American Cancer Society to present its life-saving program to their employees. All are concerned with the major threat which cancer poses. Last year, 245,000 Americans died of cancer...many of them needlessly. Among them were experienced executives, key officials, skilled workers. Their loss to business was incalculable. The greater loss, in terms of personal tragedy, was appalling.

Yet, thousands and thousands of them could have been saved if they had known the importance of going to their doctors in time. Early detection plus prompt treatment could literally mean the difference between life and death. This, and many other facts of life about cancer, are part of the education program which the American Cancer Society offers you—in your plant or factory. For additional information, call the American Cancer Society office nearest you, or write to "Cancer" in care of your local Post Office.



AMERICAN CANCER SOCIETY

Directory of Exhibitors

National Confectioners Association Exhibition July 7th to 10th, 1958 Civic Auditorium—San Francisco

Albert Air Conveyor Corporation, 600 16th St., Oakland, California. Booth 119. Dense Flo-Air Conveyor.

American Maize-Products Company, 250 Park Avenue, New York 17, N. Y. Booth 149. Corn syrups, corn sugars and corn starch. In attendance: T. Sander, J. B. Melick, C. H. Sanford, Jr., R. L. Lloyd, H. J. Hammer, J. B. Brouwer, J. Broms, L. M. Wyman, H. M. Pancoast, D. C. Rodeen, L. E. McEachern.

Anheuser-Busch, Inc., St. Louis, Mo. Booth 35. Confectioners' corn syrups and starches. In attendance: Arthur E. Weber, R. F. Amacher, W. J. Simms, E. Voigt, H. A. Best, F. Voyda, R. T. Regan, R. Haffey, A. H. Luetkemeyer.

Atlas Powder Company, Wilmington 99, Delaware. Booth 1 and 2. Sorbitol. In attendance: E. J. Costello, N. D. Kennedy, J. T. Zolper, W. H. Knightly, C. E. McLaughlin.

Franklin Baker Division—General Foods Corp., 15th & Bloomfield Streets, Hoboken, N. J. Booths 85 and 86. Coconut. In attendance: Graham T. Brown, H. T. Easton, R. C. Loeffler.

Boldemann Chocolate Company, Inc., 620 Folsom St., San Francisco, Calif. and The Blommer Chocolate Co., 600 W. Kinzie St., Chicago 10, Ill. Booth 40. Chocolate Coatings, Cocoa Powder, Milk Chocolate Stars, Milk Chocolate Pokies, 5¢ Blommer Milk Chocolate, 10¢ Blommer Milk Chocolate with Almonds. In attendance: Henry Blommer, Oscar Boldemann, Jr., Gerald Boldemann, Pierce Clair, John Matschek, Ernest Slickting, Jack Hamilton.

Blumenthal Bros. Chocolate Co., Margaret & James Sts., Philadelphia 37, Pa. Booth 47 and 48. All chocolate products,—liquor, coatings, cocoas. In attendance: Bernhard, Sam and Larry Blumenthal, Hobart Thurber, Bob Pariente.

Brazil Nut Advertising Fund, 100 Hudson St., New York 13, N. Y. Booth 62 and 63. Brazil nuts in the shell and shelled; also special displays of brazil nut candy. In attendance: T. R. Schoonmaker, Executive Secretary. Buhler Brothers, Inc., 130 Coolidge Ave., Englewood, N. J. Booth 7 and 8. Five roll chocolate refiner, pneumatic conveying equipment. In attendance: O. R. Schmalzer, Hans Zogg.

Jabez Burns & Sons, Inc., 600 W. 43rd St., New York 36, N. Y. Booth 15. Pictorial Display of complete processing equipment for chocolate and confectionery production. In attendance: C. H. Willenborg and A. E. Hawkins.

Burrell Belting Company, 7501 N. St. Louis Ave., Skokie, Illinois. Booth 70. Burrell Mylar Cooling Tunnel Belting and plaques, Burrell Reflecto Cooling Tunnel Belting plaques and Burrell Mira-Gloss Cooling Tunnel Belting and plaques. Other items are: Burrell Endless Cooling Table Belts, Burrell Endless Feed Table Belts, Burrell Caramel Cutter Boards, various types of conveyor belting and the various treatments applied to belting. In attendance: Howard G. Aylesworth, Charles R. Becker and James A. Linn.

California & Hawaiian Sugar Refining Corp., Ltd., 215 Market St., San Francisco 5, Calif. Booth 50. Specialty and regular sugars. A series of drawings and photographs on the mechanical handling of sugars. In attendance: C. H. Bleich, J. A. Remick, W. R. Junk, P. R. Lloyd, J. E. Gates, F. V. Bleuel.

California Almond Growers Exchange, P. O. Box 1768, Sacramento 8, Calif. Booth 94. California Blue Diamond Almonds. In attendance: Dale Morrison, Jack Axer, W. H. (Bill) Condley and R. K. (Bob) Clement.

Fred S. Carver, Inc., 1 Chatham Road, Summit, N. J. Booth 16. Carver cocoa presses. In attendance: Wm. S. Carver.

Ralph Chaffee & Company, 2358-60 Market St., San Francisco 14, Calif. Booth 139. Chaffee Rotor-Sealers, heat sealing machines, sealing all of the popular plastic films and demonstrating the automatic infeed, coder-dater and hole punching device. Automatic Heat Seal Label Applicator, codedating of unsupported films; using no ink nor mechanical means. In attendance: Ralph W. Chaffee, William W. Hints, Carl O. Rosendahl, Charles C. Reynolds.

Chocolate Spraying Co., Inc., 2085 W. Grand Ave., Chicago 12, Ill. Booth 110. Latini Die Pop Machine with wrapping attachment; Copper 38 Grossing Pan, with direct motor drive; Latini Chocolate Decorator. In attendance: John E. Latini and Gilbert Holmberg.

W. A. Cleary Corporation, New Brunswick New Jersey, Booth 124. Clearate C-C, Clearate, Clear-Lube and PanLube. In attendance: William A. Cleary, Arthur J. Rissetto, J. Leo Cleary and Paul A. Sartoretto.

Clinton Corn Processing Company, Clinton, Iowa. Booth 91 & 92. In attenance: H. A. Bendixen, A. C. Junge, E. D. Cottral, E. C. Alderson, R. H. Jackson, W. F. Jackson, R. C. Rau, J. E. Greninger, S. L. Lambertson, J. B. Bierie, G. R. Smith, R. E. Clapp, Fred H. Meyer, Glenn C. Mackey.

Corn Products Sales Company, 17 Battery Place, New York 4, New York. Booth 84. Globe brand corn syrups, Rex brand corn syrups, Cerelose brand dextrose, Hudson River corn starch, Buffalo special moulding starch.

Diamond Walnut Growers, Inc., 1050 S. Diamond St. (P. O. Box 1727) Stockton, Calif. Booth 130. Walnuts. In attendance: Ben O. Wright, R. L. Melden, R. J. Tutt, Wm. E. Bryce.

E. I. du Pont de Nemours & Co., Inc., Film Dept., Nemours Bldg., Wilmington, Delaware. Booth 89 & 90. Cellophane and "Mylar" polyester film. In attendance: K. M. Scheu, E. E. Quigley, R. J. Crowley, H. L. Jordan, D. K. Shoop, B. C. Robbins.

Durkee Famous Foods, Cleveland, Ohio; Chicago, Ill.; Jamaica, New York; Louisville, Ky.; Berkeley, Calif.; Bethlehem, Pa. Booth 115 & 116. Paramount hardened vegetable oil with Lecithin, desiccated coconut, sweetened coconut, toasted coconut, creamed coconut, Hydrol, Konut, Cirol, Plastek, Melofil. In attendance: Russell Smith, R. H. Woodcock, R. J. Hauer, Norman Bruce, John Carter, Marvin Cochran.

D. Ghirardelli Co., P. O. Box 3581, 900 N. Point St. San Francisco 19, Calif. Booth 36. Chocolate & Cocoa products. In attendance: Ben W. Reed, George Baher, Sidney Lawrence, Harvey T. Ghirardelli.

J. W. Greer Company, Main and Eames St., Wilmington, Mass. Booth 127 & 128. Multi-Zone Cooler, and Nut-Robe. In attendance: Don S. Greer, Philip P. Wadsworth, Roderick L. Grace, Charles R. Becker, Jack E. Postl.

Groen Mfg. Co., 4535 Armitage Ave., Chicago 39, Ill. Booth 106. Self contained steam jacketed kettle—no steam required.

Guittard Chocolate Co., 10 Guittard, Burlingame, Calif. Booth 150. Coatings and other chocolate products. Cocoa bean trees, enlarged pictures of plant and chocolate machinery. In attendance: H. A. Guittard, F. S. Timberlake, Paul J. Sweazea, Henry Spini, Baxter Thomas, John Hoover, Harvey Barrett.

Gunther Products, Inc., 600 E. Main St., Galesburg, Ill. Booth 67. G-400 Whipping Proteins. In attendance: J. K. Gunther-President, District Representative.

James C. Hale & Co., 282 7th St., San Francisco 3, Calif. Booth 102 & 103. Heart shaped candy box wrapper, carton maker, filler & closer. In attendance: James C. Hale, E. J. Cavenaugh, A. Bentz, J. Williams.

Hansella Machinery Corporation, Grand and Ruby Avenues, Palisades Park, N. J. Booth 9 & 10. Type 19 J Automatic Batch Former and Type 65 D Rope Sizer. In attendance: Joseph L. Raffetto, Kurt Beyertz, C. G. Cockinos.

Haslett Warehouse Co., 680 Beach St., San Francisco, Calif. Booth 44.

The Hubinger Company, 601 Main St., Keokuk, Iowa. Booth 45. OK Corn Syrup—OK Thin Boiling Starch—OK Molding Starch—OK Dri-Sweet Corn Syrup Solids. In attendance: R. L. Krueger, L. C. Watson, A. M. Robinson, G. R. Underwood, J. T. Flahiff, H. S. Brightman, D. L. Tiger, H. L. Peper, Curt Aagre, D. L. Anderson, J. T. Wallenbrock.

J. A. Joffe & Co., 206 South 13th Ave., Mount Vernon, N. Y. Booth 39. Candy Decorations, Sugar Ornaments, Icing Flowers. In attendance: Roland D. Joffe, Daniel E. Joffe, Susan L. Joffe.

A. Klein & Co., Inc., 113-119 West 17th St., New York 11, N. Y. Booth 4. Fancy boxes made for confectionery—exclusively. In attendance: Joseph Ehrenfeld, Adeline Ehrenfeld, William Michaelis.

H. Kohnstamm & Co., Inc., 87 Park Place, New York 7, N. Y. Booth 114. Atlas certified colors, genuine fruit and imitation flavors. In attendance: Arthur Vogel, Wm. H. Nelson, Andrew Torter, Justin Pulver, Bud Tinnes.

J. M. Lehmann Co., Inc. (Moore Dry Dock Co., West Coast Representative), Foot of Adeline St., Oakland, Calif. Booth 49. General chocolate and confectionery machinery. Literature and display photographs only. In attendance: C. J. Alciati, Joe King, C. W. Muller, C. Dittmann, H. Mierswa.

Merrill Lynch, Pierce, Fenner & Smith, 70 Pine St., New York 5, N. Y. Booth 68. News and Quotation Ticker, market display board and printed material. In attendance: M. J. Forbes, R. Preminger, R. Stevenson.

The Manufacturing Confectioner, 418 N. Austin Blvd., Oak Park, Illinois. Booth 53. The Manufacturing Confectioner, Candy Packaging, Candy Equipment, Purchasing Executives' Number, Books, Candy Buyers' Directory. In attendance: James W. Allured, Janet Allured, Allen R. Allured.

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Today's Competitive Requirements Cannot Be Met With -Obsolete Equipment New NATIONAL Franking SANITARY HIGH GLOSS Eurober

cleanlined . NATIONAL MOGUL -M-100

Precision built to the highest engineering standards, Harmonic motion insures trays against jolting starts or sudden stops . . . keeps molds perfectly intact and eliminates scrap. Thoroclean Sieve cleans centers in normal operation without need for any extra auxiliary center cleaning equipment.

Modernize with National Equipment

When you buy National Equipment, you buy the industry's finest! Furthermore, you insure your operations against labor headaches and production problems. National Equipment is a smooth, steady, dependable producer . . . requires little attention . . . less labor . . . and least maintenance.

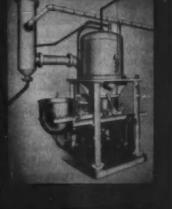
VISIT OUR BOOTH NUMBERS 32 - 33 - 34

N. C. A. Confectionery Exposition **JULY 6-10**

Civic Auditorium, San Francisco

NEW NATIONAL HIGH SPEED HI-GLOSS CONTINUOUS HARD CANDY VACUUM COOKER

600 to 2500 lbs Hourly Production of the FINEST - CLEAREST DRIEST - GLOSSIEST Quality Hard Candy



National Equipment Corporation

153-157 CROSBY STREET

NEW YORK 12 N. Y.



Marathon, A Division of American Can Company, Menasha, Wisc. Booth 152 & 153. Marathon Hi-Fi Packages, Marathon Hi-Fi Polyglaze (Poly Coated), Marathon Hi-Fi Chocolate-Glassine, Marathon Hi-Fi Paraply Greaseproof, Foil Laminated Cartons and Overwraps, Hi-Gloss Waxed Cartons and Overwraps, Heat-Seal Bands and Labels. In attendance: Ken Houts, Bern Wahle, Stan Wyss.

Merckens Chocolate Co., Inc., 155 Great Arrow Ave., Buffalo, N. Y. Booth 3. Chocolate Coatings -Liquors-Cocoas-Rainbow-Monterey Coverings -Novelties. In attendance: Aug. Merckens, Wm. Merckens, B. Oskamp, Jim Grey, Chase Colborn, Gardner Beach, Marius Glerup.

Mikrovaerk A/S, Sydmarken 32-38, Copenhagen-Soborg, Denmark. Booth 75 & 76. Roll-end of Eriksen Depositing Line. Fully automatic tempering machine, type TA XIII/600 Chocolate pumps, Chocolate moulds, mould carrier with spinning device for Jensen hollow goods moulding line. In attendance: Karl Magnussen, Ove Prasz.

Milprint, Inc., 4200 N. Holton St., Milwaukee 1, Wis. Booth 111 & 112. Our full line of packaging materials, for the candy industry. In attendance: James K. Heller, James Perkins, Herman Gronauer, Blaine Baesler, William Heller, Sr., Charles Hummer, Matthew Katz, Lester Zimmerman, Cliff Williams, James Manion, James McFaul, Hobart McNeill, William Ockenden, John St. Clair Woods.

Molded Fiber Glass Tray Co., Linesville, Pennsylvania. Booth 108. Sanitary Fiber Glass trays and boxes. In attendance: J. W. Moore, Carl Hornkohl.

Murnane Paper Company, 1510 N. Kostner Ave., Chicago, Ill. Booth 5. "Lint-Free" Chocolate board and pure white Base Cards—both plain and H. T. Non-Stick treated for magazine and roll feed bar wrapping machines—preassembled nest partitions—dividers—layers. In attendance: J. Hobie Murnane, Robert P. Walsh, Marie Walsh, Joan Murnane.

National Equipment Corporation, 153 Crosby St., New York, N. Y. Booth 32, 33 & 34. Rose high speed wrapping machines, National Equipment depositing units National Case Sealer. In attendance: W. H. Kopp, Jack Debrovner, Allen Carter, Sidney Greenberg, Charles Balin, Richard Greenberg.

The Nestle Company, Inc., 100 Bloomingdale Rd., White Plains, New York. Booth 24. Icecap and our regular line of Quality Milk and Vanilla Coatings will be on display in addition to our 2½ lb. Milk Chocolate piece called Alps Break-Up. In attendance: T. F. Corrigan, R. H. Wilson, J. E. Clarke, J. E. Conley, E. E. Ebel, R. A. Fife, J. J. Flynn, H. S. Watts, A. T. Newth, J. R. Meagher and Mrs. H. J. Britt.

Norda Essential Oil and Chemical Co. of New York with California branches at 955 Natoma S. F. and 5611 Sheila St., Los Angeles. Booth 64. Oils, Flavors. In attendance: Paul L. Cooley, Jay Simpson and others, not yet decided upon. The Nulomoline Division of American Molasses Company, 120 Wall St., New York 5, N. Y. (offices in Boston, Chicago, New Orleans, Wilmington, N. C., San Francisco, Los Angeles, Portland, Ore., Seattle, Wash.) Booth 54 & 55. Products to be displayed cover a wide range of candies for year round sale and heat resistant candies for sale during summer months. Formulas for these candies are available. Nulomoline (standard invert sugar) Grandma's Old Fashioned Molasses and Convertit (invertase). In attendance: Jas. A. King, Fred Janssen, Jack Yurman, Richard Gatterdam, William Hale, Frank Winder, Ed Toolen, Ray Borham, Leonard Greer, Frank Trager.

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Package Machinery Company, Chestnut St. East Longmeadow, Mass. Booth 141 & 142. 22-B Machine, TWB Machine with net weight scale. In attendance: L. A. Curtis, F. L. Schrade.

Penick & Ford, Ltd., Inc., New York City, N. Y. Cedar Rapids, Iowa; Atlanta, Georgia; San Francisco, Calif. Booth 133 & 134. Complete line of corn syrups and starches for the confectioner. In attendance: O. H. Tousey, D. P. O'Connor, Walter Russell, P. G. Wear, L. S. Poer, F. J. McCrosson, J. A. Kooreman, Don Cahoon, H. A. Harvey, M. E. Goodman, Fred Carter, Norman Vance.

Quincy Paper Box Co., 230 N. 3rd St., Quincy, Illinois. Booth 80. Valentine heart and fancy candy boxes. In attendance: Paul Jochem, M. A. Jochem.

Racine Confectioners Machinery Company, 15 Park Row, New York 38, N. Y. Booth 135. Framed photos of other machines. Racine Candy and Chocolate Depositor, Stick Candy Sizing, Twisting and Cutting Machine, Candy Cane Crooking Machine. In attendance: Claude J. Covert, William Genich, George Scheu, Leonard Shapiro.

Reflectotherm, Inc., 26 E. University Ave., Cincinnati 19, Ohio. Booth 25. Placards, Photos, Brochures, Article Reprints to illustrate radiant coolin. In attendance: Dr. C. A. Mills, Ted Merckens.

F. Riter & Co., 4001 Goodwin Ave., Los Angeles 39, Calif. Booth 38. Flavors. In attendance: Allan E. Katz, Leonard Katz, Mrs. Alexander Katz. Paul Fourman.

Royal Container Co., 629 Bryant St., San Francisco 7, Calif. Booth 43.

Savage Bros. Co., 2638 Gladys Ave., Chicago 12, Ill. Booth 107. Latest Fire Mixer. 18" Copper Coating Pan. 100 lb. Stainless Chocolate Mixer. Continuous Candy Cutter. In attendance: R. J. Savage, Jr., L. K. Savage, M. A. Savage.

F. J. Schleicher Paper Box Co., 1811 Chouteau Ave., St. Louis 3, Mo. Booth 113. Fancy candy boxes for all occasions, particularly decorated Valentine Heart Boxes. In attendance: William J. Engel, Lawrence S. Schleicher, Allen K. Schleicher.

Schooler Mfg. Co., 11341 San Fernando Rd.,

P. O. Box 65, Pacoima, Calif. Booth 27 & 28. Model S-2 Wrapmaster, fully automatic; Model J-2M Wrapmaster, semi-automatic-wrapping machines. In attendance: J. T. Schooler, Ralph Wittenberg, Cal B. Pierce.

Setter Brothers, Cattaraugus, New York. Booth 137.

W. C. Smith & Sons, Inc., 2539 N. 9th St., Philadelphia 33, Pa. Booth 97 & 98. 16" Chocolate Coater, Pony Chocolate Coater, Chocolate Melting & Tempering Kettle, Caramel & Nougat Cutter, Space-Saver Packing Machine. In attendance: W. C. Smith, Jr., S. Chas. Jacques, Ted Merckens, Les Drusendahl.

Spreckels Sugar Company Two Pine St., San Francisco, Calif. Booth 42. Spreckels Sugar. In attendance: W. H. Ottey, C. F. Johnson, C. J. Schuepbach, E. T. Winslow, D. F. Leary.

A. E. Staley Mfg. Co., Decatur, Ill. Booth 95 & 96. Sweetose Corn Syrup, Regular Corn Syrup, Intermediate Corn Syrup, Confectioner's Starches, Sta-Sol Lecithin. In attendance: N. K. Nammer, R. R. Dombroski, F. Hanly Brock, D. D. Miller, H. T. Craig, R. E. Heyl, R. E. Harroun.

Standard Brands, Inc., 625 Madison Ave., New York, N. Y. Booth 129. Fleischmann Fancy Pecans. In attendance: Harry E. Holder, E. Hazen, W. B. Perkins, L. Tomsky, Walter Malberg, Don Mix.

Sugar Information, Inc., 52 Wall St., New York 5, N. Y. Booth 73 & 74. Confectioners registration for drawing to win a ton of sugar! In attendance: Neil Kelly, David Quinlan, Margaret Zeller.

Sunkist Growers, Products Department, 720 East Sunkist St., Ontario, Calif. Booth 69. Exchange flavoring oils of lemon, orange and grapefruit, Exchange citrus pectins. In attendance: D. R. Thompson, L. C. Gallagher, W. E. Paulin, J. S. Adamson, C. A. Lockwood, D. F. McMillan, J. A. Finley, D. E. Pritchett.

Supermatic Packaging Corporation, 1460 Chestnut Ave., Hillside, N. J. Booth 132. "2350 Super" Supermatic G. D. Wrapping Machine, "250" Supermatic G. D. Wrapping Machine. In attendance: Benedict R. Marfuggi, John Lambertini, Orazio Callegati.

C. E. Twombly Company, 146 Mystic Ave., Medford 55, Mass. Booth 154. Candy Cups, Paper Products. In attendance: W. D. Brooks, George F. Twombly.

Union Confectionery Machinery Co., Inc. 318-322 Lafayette St., New York, N. Y. Booth 31. In attendance: Herman Greenberg, Charles Greenberg.

Union Sales Corporation, 301 Washington St., Columbus, Ind. Booth 117 & 118. Products from corn. In attendance: E. B. Pulse, G. W. Anderson, J. A. McLean, G. C. Dampier, D. Foster, P. L. Gourno, C. F. Grathen, W. W. Bissell, J. P. French, R. L. McLean, H. E. O'Shaughnessey.

Vacuum Candy Machinery Company, 15 Park Row, New York 38, N. Y. Booth 136. One (1) Simplex Vacuum Cooker. Framed photos of other machines. In attendance: Claude J. Covert, William Genich, George Scheu, Leonard Shapiro.

Voss Belting & Specialty Company, 5645 N. Ravenswood Ave., Chicago, Ill. Booth 37. Mylar Cooling Tunnel Belts, Hi-Gloss — Hi-Lustre Glazed — Batch Roller belts, Caramel Cutting boards, Vosstex conveyor belting, Teflon Coated Fibre, Glass; canvas & Neoprene endless bottomer belts and Meshlok Power Turns. In attendance: Robert J. Stevens.

White Stokes Company, 3615 S. Jasper Pl., Chicago, Ill. Booth 109. Superkreme – Fondax – Whistojel – Pattie Fondant. In attendance: Emery J. Stevenson, Charles A. Dillon, Andrew N. Tzakis, Jerry E. Sellers, W. W. Kearney, Donn D. Moseley, James R. Giannotti.

The Woodman Co., Inc., 647 E. College Ave. Decatur, Ga. Booth 100 & 101. Air Weigh Metic, Plur-A-Matic, Econo-Weigh & Rotary Pak-off Table. In attendance: Allen H. Forsyth, R. V. Young, John Ashworth, George Denham.



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OAKES CONTINUOUS MIXERS

NOW AVAILABLE IN THREE MODELS TO FIT THE PRODUCTION REQUIREMENTS OF ANY SIZE PLANT

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Now—for the first time—OAKES MIXERS are available in sizes which have been expressly designed to accommodate the production capacity of any plant, from the smallest to the largest. Each unit is fully equipped with the same basic features to provide equal advantage of superior quality marshmallow, uniform production and cost reduction which OAKES continuous



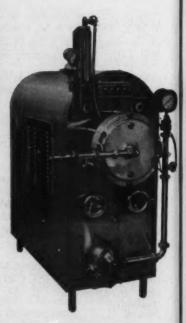
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Capacity up to 750 pounds of candy marshmallow per hour



MODEL 14M10 Capacity up to 3000 pounds of candy marshmallow per hour

Now—more than ever—be prepared for keener competition ahead. An OAKES MIXER will produce the highest possible quality and provide additional benefits which contribute to profit by reductions in cost. Over a hundred installations producing marshmallow is proof beyond question!

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The consultant in the candy field

BY WES CHILDS
Knechtel Laboratories, Inc.

onsiderable misconception exists concerning candy consultants. How do they operate? Can they help both the small or large candy manufacturers? If so, how? What about costs or fees? Are candy consultants honest and ethical? How should a consultant be chosen?

By nature, a candy consultant is a specialist. He may be likened to a physician in many ways. Both are dedicated, professional men. Through training and experience, the candy consultant has acquired a broad, over-all knowledge of the confectionery industry, and usually a knowledge of other segments of the food industry as well. He has spent years in many phases of candy manufacturing and is well informed on raw materials, processing, equipment, packaging, merchandising and cost accounting. As a doctor endeavors to improve the health of his patients so a candy consultant strives to improve candy through such means as will enable his client to benefit.

A physician retains the confidence of his patient by refusal to divulge matters which have transpired between them. Likewise, a candy consultant refuses to reveal information obtained from one client to another. Obviously, the passing of confidential information from one client to another would be detrimental to the doctor or consulant, lack of faith would soon cause the failure of both. Like the doctor, the consultant obtains the facts (studies the symptoms) before making any recommendations. Lest we forget, the consultant can no more guarantee a cure for an ailment in production than the doctor for a physical illness.

A candy consultant must be honest. His reports, based on the facts obtained and on the work performed, cannot be biased. He is not under the same stress and strain imposed on the employees of organizations, where, far too often, a "yes-man" is a fixture. The candy consultant has no axe to grind. Future assignments depend upon his integrity and ability to face facts, harsh as they may be. This unbiased approach is, perhaps the candy consultant's leading attribute.

Organization employees have nothing to fear from a consultant. The consultant is independent and is not seeking any one's job. His presence is merely that of an outsider — a contractor hired to perform a definite task. His contact with the employees should be friendly and of benefit to the employees. The consultant brings new ideas, new approaches, and different thinking, all of which should be morale builders. Naturally, the candy consultant requires the co-operation of the plant employees but this works both ways. Questions from plant employees should be readily answered.

In choosing a candy consultant, consideration should be given to the background as well as the facilities at his disposal so that the consultant's assignment may be adequately executed. Training and experience count for little if the consultant cannot report some of his accomplishments. These deeds may be mentioned in such a manner that confidences of previous clients are not violated. For example, has the consultant developed any outstanding pieces of eandy? Has he been able to reduce costs or improve quality, speed up production, introduce innovations in processing, packaging or marketing? Does the consultant hold any patents? Does he keep up-to-date regarding technical and non-technical developments?

A candy consultant requires facilities with which to do his work. If he is a single operator, he may use his client's equipment for his tasks. There are, in fact, many times when the candy consultant can only secure the desired results on the client's premises.

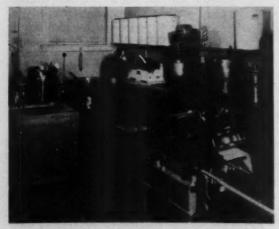
Much may be accomplished in the consultant's own laboratory where he may have extensive testing apparatus and equipment available as well as a pilot candy plant. Thus the consultant can make small batches of candy — under controlled conditions—and subject the finished candy to shelf-life studies. Equipment such as open fire stoves, steam kettles, beaters, chocolate melting kettle, chocolate enrober, revolving pan, depositors, crystallizers, and starch drying room or simulation



This view of the laboratory at Knechtel's shows water bath, vacuum oven, analytical balance, desicator, Ph meter, cabinets and microscope.



This technical library at the Al-Chem Laboratories provides full reference sources of current literature on chemical and food technology.



This photo of the candy kitchen at Knechtel Laboratories shows, left to right, electrically heated steam jacketed kettle, candy furnace, revolving pan, mixer-beater, drop frame, chocolate melter, chocolate tempering kettles and seven inch chocolate coating mechine.

thereof. Some moulding facilities are almost a must. The supplies necessary are more varied than those carried in most candy plants.

Laboratory and pilot plant facilities are very expensive. Likewise technical man-power. For the small manufactruer, the cost and overhead of a manned technical department is almost prohibitive. But by retaining a candy consultant, the small firm can, at a fraction of the cost involved in setting up its own testing facilities and securing the services of a capable technologist, avail itself of technical assistance and keep up-to-date.

Supply firms have acted as consultants in many cases and the customers have benefited greatly from this service in the past. Suppliers, however, have an axe to grind, they are interested in selling more of their product, and hence, cannot always be considered as unbiased sources of information. The small candy manufacturer who desires to improve his line of confections would do well to consider the services of an outsider and so obtain a different viewpoint.

Many large candy plants are adequately staffed with technical and experienced personnel. Yet, many times such an organization can utilize the services of a consultant. The alert consultant may suggest a new method of attack on a problem which management has overlooked because of their closeness to the scene. Then too, the consultant may offer testing and analytical services at a cost below that calculated for in-plant personnel, resulting if accepted, in liberating plant personnel for more important duties.

In recent years, taste panels and flavor evaluations have become virtually a necessity for food products designed for the national market. Candy though bought on impulse the first time, may be purchased on its delicious flavor appeal at later times. Flavor is the priceless ingredient of candy. Candy consultants sometimes operate taste panels and are able to submit valuable findings as a result.

With regard to flavor evaluations, the consulting laboratory can prepare samples of candy for taste purposes, each sample having a different flavor or exhibiting a flavor variation, and yet all identical otherwise. This is not only expensive but almost impossible to do within a manufacturing plant without incurring trouble, mixed batches, scrap, and slow-down of production.

Many large plants with well-equipped machine shops for maintenance have found that it is much cheaper to farm out plans and specifications for new equipment or modifications of old equipment rather than to do the work in their own shop. By the same token, large plants are finding that the candy consultant can perform certain services at a lower cost than their own staff.

A small or large candy company may be producing every item required for an assortment marketed. Investigation by a retained consultant may show that the quality or cost of one or two items in the assortment is out of line, in which case, he will say so, and if a remedy is not at hand, will be capable of making a recommendation that item or

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This pilot plant and laboratory of Al-Chem shows, left to right, small marshmallow beater, seven inch coating machine, small Mikro-Atomizer, a Cowles dissolver, a grinding mill, a Carver Press, a bloom gelameter, hot plate, microscope, pH meter and scales.

items may be purchased. Such findings seldom come from in-plant personnel.

Thus the services offered by a candy consultant can be helpful in many ways: analytical and physical testing of raw materials and finished goods, manufacturing and processing suggestions, aiding in packaging, marketing assistance, and acquainting management with governmental regulations. Sanitation check-ups are important — trust an outsider to see things over-looked by employees!

Dr. Sidney M. Cantor, Sidney M. Cantor Associates, wrote "The Chemist as an Independent Professional" for Career Opportunities for Chemists and Chemical Engineers in Chemical and Engineering News, January 27, 1958, and the following extract merits attention.

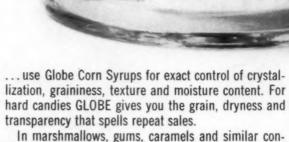
.... the very complexity of our industrial structure and the fact that this complexity is increasing may be creating the need for a fresh approach to consulting - a new kind of consultant who is a generalist rather than a specialist. . . . Such an individual, rather than providing specific technical information, will be equipped to offer, among other services, objectively based appraisals, to interpret technical language, and to serve as a communications channel. He will provide a measure of reassurance both to management and technical personnel. And perhaps most important he will encourage the development of a creative atmosphere, thereby reinforcing the aspirations of the technical staff. The fact that he will carry out one or all of these functions in an independent and therefore non-competitive way is a major justification for his presence. It is quite possible that only through the efforts of such consultants can the complexity and impersonality of large industrial organizations be broken down enough to utilize creative personnel efficiently."

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fections, GLOBE helps achieve the preferred degree of tenderness and chewiness. GLOBE syrups are available in a range of regular and medium conversions.

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Other fine products for the Confectionery Industry: REX* corn syrup CERELOSE* dextrose sugar • BUFFALO* and HUDSON RIVER* starches.



CORN PRODUCTS SALES COMPANY . 17 Battery Place, New York 4, N.Y.



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Continuous steam cooking of jellies

BY HAROLD E. ATCHISON Farley Manufacturing Company Thermal Equipment Corporation

In almost every Confectioner's library you will find a little black book with the enlarged corn kernel on the cover. It is published by Corn Industries Research Foundation, Inc. in New York City and titled—"CORN STARCH."

"It has been calculated that one pound of corn starch contains about three quarters of a trillion granules. Yet each tiny granule possesses a highly

complicated internal architecture.'

"The granules in any particular starch sample do not all begin to swell at the same temperature, but rather over a gelatinization range, for example

147-162 F for corn starch."

Heating an aqueous starch suspension opens up the looser regions between the micellar bundles. Water therefore penetrates into the granules, hydrating and swelling these intermicellar areas. This corresponds to the gelatinization point, and progressive swelling gives a network still held together by persisting micellar areas."

"Even prolonged cooking does not completely dissolve this network structure. It can be dissolved, however, by supplying high levels of energy: for example, by autoclaving (steam cooking under pres-

sure) a dilute starch suspension."

"Corn starch, for example, thickens at first as gelatinization progresses and then thins out slightly as cooking continues at 203 F. When the hot solution is cooled the viscosity increases."

"Increasing the agitation of a starch solution during cooking hastens the breakdown of the starch granules." "It is thus clear that agitation must be included with cooking temperature and time as a third factor calling for close control."

"The giving up of water by cooled starch pastes is referred to as "weeping," syneresis or watering, a phenomenon most likely to occur in starches

that have been undercooked."

"It is believed that water absorbed during cooking is so loosely held during the early stages of swelling and gelatinization of the starch granules that undercooked starch gives up water easily on cooling or aging. Lower temperatures (refrigeration) accelerate the process. When weeping occurs, the viscosity or consistency also drops, sometimes quite suddenly, as a result of what is called "jelly collapse."

This is textbook language to most of us laymen, but what does it mean to candy makers in the production of a higher grade and less troublesome

jelly candy?

Starch jellies are one of the old standard items and have for years been cooked in open kettles under the watchful eye of a "prima donna" who professes to possess the "art" of cooking jellies. These artistic touches often vary and we all have shipped out batches of candy that have sooner or later caused much comment. Foremost among these comments, are complaints of sweating, toughness, cloudiness and dull color.

Most will agree that if we could produce a jelly piece with good color sparkle, tenderness, and long shelf life and be able consistently to maintain that quality and at the same time show a substantial savings in fuel, power and labor, it would be worth

looking into.

We do not presume to know all of the correct answers to these questions, and further we have not been equipped or staffed to develop a cooking process by theory. We have however, empirically, by trial and error discovered a process that will be an answer to many of these questions. These things we believe, you may challenge them or disprove them as you will, but we have a superior gelled candy to help prove our point.

In the open kettle method of cooking starch jells, the temperature is gradually raised to or above the boiling point of water and it continues until the unwanted water in the formula has been evaporated off. In an average sized kettle this

takes from 40 to 50 minutes.

The fuel or steam used is mostly for the purpose of boiling off this excess water—saving number one—we found that we could save about 85% of that fuel if we reduced the amount of water to be evaporated off. How?—At home your wives are now cooking vegetables in a pressure cooker using only a few tablespoonsful of water to produce the necessary steam—steam penetration and heat are doing the job. Why not steam pressure cooking for starch jelly using only the amount of water that is desired in the finished cooked candy?

Our first problem is to evenly, or as evenly as possible, convert several times three quarters of a trillion granules of starch into a jelling agent or sponge that will retain the maximum amount of water for the longest possible time. As we learned in the little book, each of these granules consists of miscellar fibre structure with areas between these fibres capable of swelling when they absorb water. Some of this swelling due to heat and moisture will start in the range given at 147 to 162 F. for cornstarch. "It is believed that water absorbed during cooking is so loosely held during the early stages of swelling—that under-cooked starch gives up water easily on cooling."

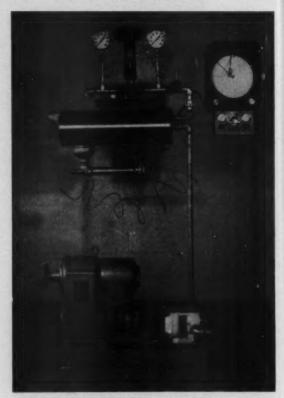
What then is the cooking range that will open up to it's maximum capacity, the fibrous net that holds the gelling portion or sponge? What temperature and how much time is required to swell this sponge area so that it will not readily give up it's moisture upon cooling? Shall it be cooled quickly or shall it cool off gradually in the starch trays? Will heat in the drying rooms aid the setting of the jelly or will time and gradual cooling produce a gell that will retain it's moisture longer? These are problems for the starch chemist whether he be part of a confectionery plant staff or of the starch manufacturer's technical staff.

Remember, the little book says "the network structure of the granule can be dissolved by supplying high levels of energy for example, by autoclaving or steam cooking under pressure." Our "high levels of energy" can be supplied by steam pressure that will exceed atmospheric temperature limitations and will also provide the agitation mentioned above as "the third factor calling for close control."

Engineers dam up a river and still allow the river to flow over the top of the dam. Why not pump our product into the pressure chamber and dam up the stream, allowing it to still flow out from the other end of the chamber? We need to know three things—how fast shall we pump the product into the chamber, how much steam is required to swell the granules, and how fast shall we allow it to escape from this pressure area.

This was not a matter of slide rule calculation but long and tedious trial and error until we found that it was possible to set up a rule for procedure. The resulting candy was clearer, clearer by far than any kettle cooked starch jelly we had ever produced. Months of shelf life testing also encouraged us as we found that the jelled areas were really holding the moisture longer.

We had finally eliminated the gallon of water to a pound of starch requirement. No longer was it necessary to boil off water and over-cook a lot of the starch while doing it. Now we must determine how many pounds of candy an hour to pump thru our chamber to keep up with the Mogul. Variable quantities from jelly bean centers to orange slices. Again trial and error. Several pumps were tried in a range of speeds until we could at one end of the range supply the Mogul with bean centers and by turning the adjustment handle we could more than triple the capacity for orange slices. Instrumentation was then employed to adjust the flow of steam after we had cooked for months with manual steam control.



Goo

The Thermal Equipment Continuous Steam Jelly Cooker, with complete auxiliary services and controls...

The process is briefly explained as follows: The candy formula is calculated on a dry basis and to it is added water to total from 22 to 26% according to the product desired. This slurry is mixed in an agitator kettle which can also be equipped with a recirculating pump. Sufficient heat is applied in the slurry make up kettle to warm the corn syrup and aid in dissolving the sugar. This can be anywhere from 130° to 170° F. In high production such as orange slices it is a help to the cooker to use the higher slurry temperature.

The warmed slurry is then pumped thru a positive displacement pump directly into the end of the cooking chamber. Surrounding the slurry inlet pipe are steam jets that spray the slurry within the chamber. This provides the agitation and separates the fluid stream so that the heat may be absorbed instantly from the steam. After absorbing heat the slurry falls to the bottom of the chamber and flows out thru a tail pipe into which a thermometer bulb has been installed.

The reading of the temperature of the cooked product leaving the chamber is transferred by capillary tube to the recording-regulator. The regulator adjusts the air pressure that opens or closes the steam supply valve. Thus variations in steam pressure and the temperature of the slurry are taken into account and the proper amount of steam is fed to the chamber to maintain a desired outlet temperature. Scrap jelly candy may be added to the raw slurry and processed thru this cooker.

The stream of candy flowing from the cooking chamber is forced thru the delivery pipe to the

LATINI CHOCOLATE SPRAYING SYSTEM

Unexcelled for Panned Goods and Pre-Building for Enrober. 1000 lbs. per pan per day. Systems available from 4 to 12 pans.

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HONTZ CLUSTER MACHINE



Uniform Clusters formed on enrober from any freeflowing nut.

No labor required No floor space Easily detached from enrober.

HOHBERGER BALL MACHINE



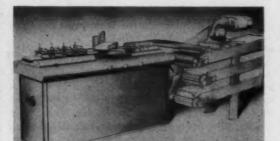
Only one operator required to produce up to 1,200 lbs. per

You can produce.

Balls—clear, pulled or honeycombed filled—9/16" to 1½"

diameter.

Sunbeam Starlights: stripes brought down to center without expensive inlay.



M.F.P. Stick-Master patent pending

New Style-Twister, Cutter & Straightener Flexible—satisfies all lengths and diameters Productive—Up to 1500 inches per minute Sanitary—Stainless steel finish—Candy always in sight

MILL RIVER PUMP BARS

Faster, better, and more accurate due to precision workman-ship. Water-sealed—Sanitary—No Grooves—No Washers. Available in all sizes. Single, double, triple and quadruple row for all depositors. Also available—Special Chacolate Pump Bars—Sanitary Stainless Steel Hoppers.

BERKS HARD CANDY MIXER



Mixes color, flavor and acld in 75 to 125 pound batches at rate of 1000 lbs./hr., 10% scrap may be included. Saves labor and floor space. Assures uniform mixing and constant rate of production through the day.

Representative:

John Sheffman, Inc.

152 West 42 Street

New York 36, N. Y.

receiving kettle. A pre-determined orifice or back pressure section is built into the delivery pipe to control the flow of the product from the cooking chamber. This requires no setting or adjustment—it is a fixed orifice.

As the cooked candy leaves the delivery pipe, the remaining steam flashes to the atmosphere and is carried away by the vent originally used to carry off the water of evaporation when the kettle cooking method was used. There are no moving parts in the cooker chamber. There is nothing to adjust or maintain or get out of order.

The controller is a delicate instrument and when properly installed and kept clean it gives month after month of trouble free service. It is not a piece of equipment however that can stand rough handling. This would be true however of this type of controller whether it be on this cooker or any other automatic control problem.

Cleaning is simple—the purging of the system by steam alone will serve to blow out any remaining product at the end of each batch. Many choose to wash out the slurry kettle with water at the end of the day and pump the water thru the cooker with steam. This practice is followed where colored batches are cooked thru the unit. We prefer however to cook clear batches and color and flavor in the receiving kettle.

Several of these cookers are producing six to seven thousand pounds an hour. Some plants produce over 60,000 pounds of orange slices or giant gum drops daily.

Here are some of the advantages of this new process.

A savings in steam consumption up to 85%. A-1-1/2 HP motor on the pump instead of several motors on kettle agitators.

One man operation (where a means of loading the sugar is provided.)

Man hours saved in cleaning.

Safety from candy splash and steam burns.

No anti-foaming agent needed.

Flexibility in cooking speeds—no waiting for candy.

Simple installation—small floor space. 16 x 36—ceiling hung chamber.

No water required for cooling.

No experienced candy cook necessary.

A cleaner cooking department.

Inversion of sugars eliminated. (Control)

Little or no maintenance.

Low cost of equipment. (Depreciation)

But Above All:

Clear, transparent, properly cooked jellies with sparkle and better color—and increased shelf-life due to the proper gelatinization of the maximum number of starch granules.

Every one of these small starch sponges can and will when properly cooked, retain water in your product. Water that you can sell at candy prices and water that makes and keeps jelly candies soft and tender. This is in part the shelf-life of your jelly candies.

There is no doubt, I am sure, in any of our minds but that the quality of starch jelly candies has improved in general in the past few years. We do not claim that the Thermal Cooker has been responsible for it all. There are as you know, other cookers also being used. We do believe however that the thirty-five Thermal units installed today are cooking over half of all of the starch jelly candy produced and that the candy being produced is superior to the candy made in the old open kettle method.





This is the fourth of five installments of an article dealing with future planning of production processes and factory layout, with particular emphasis on new factory construction.

Your future factory

BY V. P. VICTOR, M.E., P.E.
Consulting Engineer, New York City

For a multi-story plant a number of phases are amplified below.

Pernicious attempts have been and are still being made to restrict the manufacturing of one product to a single floor. In other words, the elevator theoretically brings up the raw materials and takes down the finished stock.

This is a fallacy and a common error.

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Each floor in the building has usually an identical floor area. However, it is most unlikely that each product will require the exact area of one floor. Hence, there will be either waste of space or undue crowding.

In practice, it will be only a matter of time before an unrelated machine will somehow find home in the vacant spot and start competing with the existing department for the extra elbow room.

In the case of the dense occupancy of the floor, the overflow will follow the aforementioned revolving door routine of "spotting them" on other floors. Of course, this process of haphazard expansion is not the exclusive privilege of a multi-story building. It could be evidenced in any plant which just grew up without any master plan.

In short, the multi-story building does not lend itself readily to the layout of continuous manufacturing of a multiplicity of products, i.e. automation.

The inherent deficiencies could be only partially overcome by an extensive use of conveyors.

As previously stressed, provisions should be made for shipping and receiving by both—trucks and railroad. Railroad siding cannot be relocated very well. Hence, it should be viewed as an obstruction to future expansion and located on the fixed side of the building. Naturally, along the same fixed side, one should locate other facilities hard to move. These comprise the powerhouse, pumps, tanks, washrooms, etc.

The limitations imposed by the fixed side of the building must be taken into consideration when laying out the production lines. The shape of the plot may also influence the flow pattern of the production lines. Besides the allowances for expansion of the factory proper, provisions must be made and ground areas allocated for parking, truck docks, electrical transformers, sewage disposal, water tank and other outside facilities.

VIII. Materials handling

At a risk of oversimplification, the materials handling could be divided into two basic groups, namely—(a) automatic and (b) manually operated.

In the first group the materials move from one station to another over a set route and without any human attention whatever.

Conveyor used in a production line for interconnecting the progressive machines or work areas is a typical illustration of the automatic transfer.

The automatic materials handling is a vital component link of automation. No matter how efficient may be a machine, it is not "automated" unless proper devices are incorporated into its design to receive and remove the product automatically.

Editor's Note: V. P. Victor has an extensive background in process engineering, with particular emphasis on air conditioning, refrigeration and process heat exchange.

In his work with candy manufacturers, he has had considerable experience in candy machinery development, process engineering and factory layout.



A lift fork truck moving the pallets loaded with raw materials from the receiving platform into the raw materials storage is an example of the manual-

ly operated group.

Distinction should be made at this point between the manually operated and manual materials handling. In the latter case, almost extinct nowadays, no mechanical devices are used to assist the human stamina.

It is not within the scope of this paper to attempt the classification of the materials handling field, which is vast.

However, it should suffice to outline the purpose and the general types with emphasis placed on the automatic group.

Conveyors are intended to carry out one or more of the following duties:

- Move the product or materials from one place to another;
- Set the tempo or pace for work to be done, especially significant on a line requiring a large number of workers;
- 3. Act as a floating bank or storage to absorb and compensate any variations in the production rates between two consecutive operations. The continuity of flow is retained with these conveyors known as "merry-go-round", loop, carousel, etc. As the names imply, the goods are continuously fed into, removed or ride around on the continuously moving conveyors until used up;
- Hold the materials on stationary conveyors until ready to be moved. The stored materials are moved intermittently but without any waste of time or labor.

Conveyors could be classified in many ways, namely by (1) the type of their construction, (2) characteristics of surface in contact with conveyed materials, (3) their intended duty, (4) materials they handle and (5) prime mover or media used for conveying the materials.

Considerable overlapping in both-classification and, possibly conflicting, nomenclature must be rec-

ognized.

Neither could nor is intended to serve as a guide in selecting the best and the most suitable conveyor for a given set of circumstances.

The only purpose any general classification could aim to achieve is to point out and to describe the existing types. Each group is briefly outlined.

1. Type of construction.

- 1.1-Belt, made of canvas, rubber, woven wire, sheet steel, plastic, etc.-plain or with cleats;
- 1.2-Roller, free or power driven;
- 1.3—Chain, either single or double with hooked or permanently attached carriers made for specific purpose.

The carriers could be pendant trays, baskets, boxes, trolleys or just cross bars from which the materials could be suspended or festooned. Drag line and tow type conveyors use a chain or cable, power driven, and running in a track overhead or below floor to which floor trucks or racks could be attached, moved any distance at will but along a fixed route and then detached.

Another type in the chain group is the sliding chain conveyor. One or more chains ride on tracks and carry the objects resting on top. Chains could be equipped with special attachments.

- 1.4—Monorail or tramrail using either free, chain power driven or individually motorized carriers;
- 1.5-Screw or worm.

2. Contact Surface

- 2.1—Apron conveyor which has steel aprons attached to the chains on either side, thus forming a solid and rigid support. At the pulleys, the overlapping ends of the apron slide over each other;
- 2,2—Flight or drag conveyor consists of one or two chains or cables supporting scrapers, flights or fingers which push the material along a trough or in a totally enclosed housing;
- 2.3—Pusher bar conveyor, sometimes called booster arm conveyor, has cross bar attached at both ends to chains. Bales, boxes, bundles and similar objects are pushed along a smooth surface. When totally enclosed these conveyors are suitable for lifting the objects to a considerheight and at a very steep angle;

2.4—Slat conveyor is in reality an offspring of the apron type.
The slats are aprons specially formed and spaced to fit the shape of the object they

are moving, for example, barrels.

2.5—Bucket conveyors are used primarily for elevating granular, lumpy or powdered materials and, if necessary, in connection with some horizontal travel. Buckets could be either pivoted or rigidly attached to the chain.

3. Duty

- 3.1—Elevating conveyors and related devices, either permanently installed or movable, comprise a broad variety of types. Considerable overlapping in definitions and classifications is unavoidable. For example any inclined conveyor could also be called an elevator. The principal categories are outlined below.
 - a) Lifters utilizing a single bucket or a platform moving vertically up and down. These devices are the skip hoist, elevating table, dumbwaiter and as an extreme case, the freight elevator;

 b) Dumpers for bags, drums, bowls, vats, etc., which, as the name implies, not only lift but also empty and return the container to its initial position.
 Conveyors described under No. 2.3 an No. 2.5 could be classified as continuous dumpers;

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c) Pilers and stackers handle bags, cases, pallets, trays, packages, etc. and arrange them one above the other in

a predetermined manner.

3.2—Adjustable conveyor group comprises the telescope, shuttle, accordion and the incline (booster) belt types. Usually these conveyors are portable.

3.3—Functional conveyors are associated with the unit production operations carried out simultaneously on the conveyed materials. Very often, such a conveyor loses its identity and becomes a component part of the device it serves, i.e. dryer, cooler, oven, scale, washer, etc.

> Worm conveyors with tapered, variable pitch, hollow, cut, ribbon, etc. flights are usually classified as special machines rath-

er than conveyors.

For the sake of convenience, belt conveyors are also called packing, sorting, feeding, "merry-go-round", delivery, holding, etc.

3.4—Turning conveyors and devices are used to change the travel of materials through any angle, usually either 90° or 180°. Turn tables are used where the regimentation of goods on the packing (receiving) belt must be maintained. Solid steel disc, canvas belt, specially woven steel wire belt and chains could be

4. Type of Materials

used to make the turn.

4.1—En masse conveyors move free flowing granular or pulverized materials through an enclosed tubular duct.

Abrasive, corrosive, fragile and hard (difficult to break) lumps cannot be moved by the en masse conveyors.

Flexibility of layout, i.e. turns, elevations.

Flexibility of layout, i.e. turns, elevations, discharges, etc. is the principal feature. Jettisoning and stockpiling devices may be included into this group.

4.2—Special purpose conveyors designed for specific material, such as metal cans, light paper bags, bananas, etc.

5. Motive Power

5.1—Pneumatic conveyor utilizes high velocity air to move the material through a round duct.
Steam jet, instead of air, is used for ash

5.2-Air conveyor which uses low velocity air

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to progressively agitate and move the material. It should not be confused with an "Air float" in which a web type material is supported by or floats on air.

Air coming in direct contact with hygroscopic materials must be properly de-

humidified.

Success or failure of many a pneumatic or air conveyor hinged on the conditions of circulated air.

- 5.3—Hydraulic conveyor uses high velocity water stream to move the material, usually ashes, sand and gravel, through a trough or pipe.
- 5.4—Vibrating (also called oscillating) conveyors use a solid metal trough or a channel to support the material. The bed vibrates elliptically, i.e. up and forward, and on the return stroke—down and backward. Material surges or hops forward. The length of the stroke (amplitude of vibration) is adjustable and controls the lineal speed of the materials. The speed could also be controlled, if feasible, by inclining the bed.

Either electrical or mechanical means could be used to produce vibrations.

The vibrations are imperceptible to the eye and the material appears to have a uniform motion.

Jacketed beds are used to heat or cool the conveyed materials.

5.5—Gravity conveyors comprise chutes and slides. Probably the best known is the spiral chute, which is used very advantageously in a multi-story building. However, no spiral chute should be used without a long inclined section on its outlet side. This is necessary to gradually slow down the velocity of outcoming material.

As previously mentioned, no attempt is made herein to describe the limitations, advantages and

uses of different conveyor types.

Conflicting nomenclature is common in the conveyor field. For example, a starch bucket elevator could be placed into No. 2.5, No. 3.1 and No. 4.2 categories.

All conveyors look simple upon completion, but their engineering and design are not always as

elementary as they may appear to be.

Experience and ingenuity are paramount in any

field, including conveying.

Transfer of materials from one machine to another, i.e. between two consecutive operations, requires practical mechanics, knack and perseverance rather than any drafting board design.

In a well engineered factory, the bulk of materials should travel on conveyors, a number of which

could be located overhead.

Actually, the complete handling of materials on conveyors is seldom attained.

Unit loads, moved on trucks, require aisles and corridors, which take up a lot of floor area.

Apropos, one industrial prophet recently predicted that the plant of the future will have all machinery on the second floor and the materials on the ground floor. Bomb-bay doors at each point of use will allow direct route for the materials.

No corridors will be required on the production floor. Nothing was said, however, about the corridors on the ground floor, the extra cost of the heavy duty second floor with holes, and the cost of a number of lifts or hoists.

In short, there is no practical way to eliminate the corridors, which must be made of sufficient

width and strategically located.

The materials handling phase becomes paramount in the case of a multi-story building and in the case of a plurality of buildings in which certain component operations of the process are performed.

IX. Building and structure

The building proper for a food factory should embody the following features:

- Adequate and proven aids and construction details to exclude rodents and insects from entering the plant as well as from breeding inside the building;
- Durable materials of construction, properly installed, to facilitate the maintenance of sanitation standards:
- Incorporation of safety from fire, explosions, earthquake, flood, etc.;
- Ample and acceptable waste and by-products storages and disposal means;
- Provisions to reduce the effects of the outside temperature and sun, i.e. resistance to heat and cold;
- General safety and comfort and, hence, the morale of the plant population.

Volumes could be written on each of the above six topics.

Usually the economic considerations call for compromises to a greater or lesser extent. Nevertheless, a little care in planning will go a long way in achieving most of the above goals at no extra cost.

Wood and any other organic materials, including insulation (vegetable cork, celotex, etc.) must be

avoided.

Regardless of the selection of the building materials, certain physical aspects of the building must be established. Starting from the ground up, these are:

 Most emphatically, no food factory should have a basement.

Besides the complications in the materials handling, it is extremely difficult to keep it clean. The customary low ceiling height further reduces its practical value.

The low ceiling conditions in the basement are aggravated by the presence of the drain piping servicing the first floor and sprinklers. When and if the basement has a high ceiling (deep below ground level), difficulties are encountered in proper drainage.

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Besides, heavy construction is required to support the first floor carrying substantial weights of equipment and materials.

The pernicious fallacy of obtaining the extra floor space of the basement produces a boomerang-like effect, namely-instead of getting it at a reasonable cost, not only the initial cost may be very high (excavation, elevator, first floor construction, waterproofing of the walls, drains, etc.) but also a repetitive expense of additional materials handling is introduced.

2. Ground floor (at truck and railroad car deck elevation) should be preferably on a virgin soil. In any event, it should be designed to carry the load of not less than 300 pounds per square foot.

The selection of the most suitable floor in any factory has always been and still is an extremely important and controversial matter.

In a food factory, a good floor must meet all or some of the following rigid requirements:

- a. Withstand trucking and the materials handling in general;
- b. Resist the attack of acids, sugar, oil, syrups,
- c. Not to become slippery when wet;
- d. Not to shed any dust and, conversely, not to absorb any substances;
- e. To be sanitary, i.e. easily cleanable and capable of withstanding frequent washing with hot water.

There are four basic types, namely-tile or brick, concrete, composition and aggregate floors. The latter use emery or quartz with iron particles as wear and corrosion resistant aggregate mixed with Lumnite or Portland cement. Hard burned tile or brick floors are highly resistant to corrosion, but tend to chip and wear. Difficulties are also encountered in lagging the machinery to the tile floor.

Concrete floors are most universally used. They are monolithic, could be surface hardened and are inexpensive.

Composition (mastic) floors pick up dirt very readily, become soft in the vicinity of hot surfaces and deform under heavy traffic.

Aggregate floors offer a long and impressive record of past performances.

Success of any floor depends upon three equally important parts-materials, proper installation and sufficient curing. Ample curing period is essential, especially on the repair jobs or installation of new floors in an existing building.

Neglect of instructions, contractor's integrity or lack of skill and experience account for the difference between an excellent floor and a very poor floor, both made with the identical materials. It is not uncommon to encounter enthusiastic acclaim on one job and acrid dissent on another installation of presumably identical floors. In short-utmost care and constant supervision are necessary for a good job.



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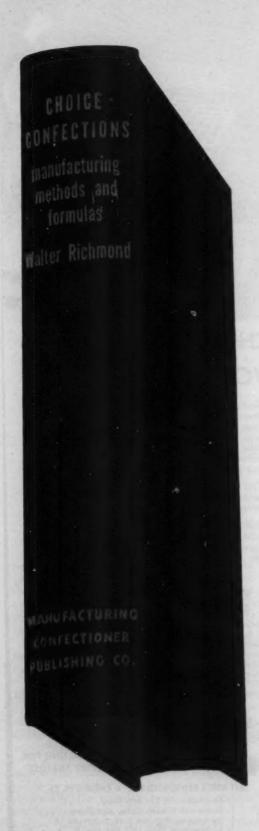


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Floors in the kitchen, toilets and wash rooms should be made of non-slip ceramic tiles laid with square joints and with the cove tile bases. Floors in the offices could be finished with plastic, rubber or asbestos tiles, linoleum, etc.

3. Column spacing is very important.

From the process and production viewpoints,

no columns should be present at all.

From the mechanical viewpoint, adequate overhead supports must be provided for piping, ductwork, sprinklers, conveyors, electrical cables, lighting, etc. Long spans will call for heavy beams and, hence, extra cost.

In practice, the most economical column spac-

ing is from 25 to 30 feet.

 The minimum clear height should be 14 feet Nowadays, ceiling heights of 18 feet are not uncommon.

This extra height imposes only an insignificant additional load on the ventilation or air conditioning apparatus. With higher ceilings, the installation of mezzanines is feasible without going through the roof.

The roof should be flat (no slopes to roof drains) and solid, i.e. without any sawtooth windows, dormers, etc.

Prefabricated concrete planks, supported by the framework of structural steel, and slag roof usually represent the most economical and durable construction.

Absence of any slope will cause the roof to retain the water on it throughout the year.

This practice is endorsed by the bonded roof underwriters.

During the dry season, the roof should be wetted, but not flooded.

As long as the roof is moist in summer time, the effects of the sun radiation are nil, which in turn drastically reduces the load on the air conditioning systems.

With the exception of buildings located in hot and very cold climates, as well as the roofs above the dry rooms and cold storages the value of roof insulation is questionable.

Insulation to reduce the heat transfer should not be confused with the insulation (barrier) against moisture.

Authorities in certain locations advise or insist on an absolutely smooth ceiling above any food preparation or manufacturing area. The practical way to cover the beam flanges, trusses, etc. is to erect a false ceiling.

The question then arises as to which is the lesser evil—dust (which could be cleaned) on flanges or a dead space between the roof and the false ceiling. Unless made sufficiently large for human access and passage, the space would form a perfect habitat for insects and, possibly, rodents.

Covering the top of the false ceiling and any other concealed flat surfaces with loose glass wool offers only a partial solution.

Outside walls and inside partitions could be made of brick, concrete, hollow tiles, cinder



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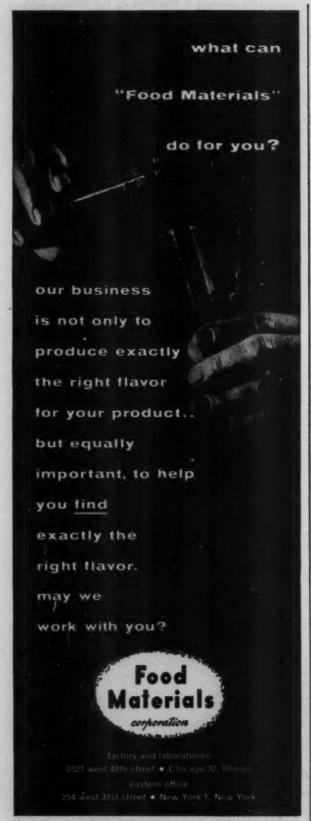
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blocks, transite, sheet metal, etc. The selection is, of course, governed by the economics, climate and the plant functions carried out in the enclosures.

Separate warehouses, machine morgue and the penthouses could have walls made of corrugated transite.

In the processing areas, the walls must be smooth and easily cleanable.

The wall coves (junctions between the wall and the floor) should be rounded out and made integral with the concrete wall bases. The latter could be made flush with the wall or extend somewhat in front of the wall, thus protecting it from truck damage. Similar cleanable junctions for columns should also be provided.

7. Doors cost money. Each door should be numbered and subjected to an individual study covering its exact location, size, material, type, thickness, glass panel or window, hinges, hardware and locks, bumpers and any other special features that may be required.

Door bucks or frames should also be studied. On heavy duty doors, the vertical members of door bucks should extend from floor to ceiling and be rigidly fastened in both places. The door data should be carefully compiled and clearly outlined on a door schedule.

- 8. Windows in a single floor factory have no tangible value for the following reasons:
 - a. Closed windows conduct heat, i.e. lose heat in winter and admit undesirable heat and sun rays in summer time.
 - Windows, if opened, must be fully screened to keep out flies, etc. Yet their ventilating capacity is negligible. Open windows admit dust into the building.
 - c. Air leakages always seem to be present around window frames. This imposes a heavy dehumidification load on the air conditioning equipment.
 - d. Windows at eye level distract workers. High windows admit some light but do not help the morale as only the sky is visible.
 - e. The maintenance of windows is high, especially in the areas where the windows sweat and as the building grows older.

However, windows of sufficient area do offer easy means for venting the explosion pressures. Otherwise, openings in the roof with light venting covers would be required.

 Offices and personnel facilities have to be adequate and should embody outright a certain spare margin.

This is desirable because of the possibility of a second shift in some departments, part time workers, etc.

Besides main lockers and washrooms, toilets and drinking fountains should be strategically spotted throughout the building.

The extent and the trim of the offices and personnel facilities are highly individualistic and ection s, cliout in

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are guided, of course, by the initial cost. To a greater or lesser extent, the personnel facilities comprise the lockers with toilets, showers and washstands, first aid, medical department cafeteria, laundry exchange, social service, recreational facilities, transportation, canteen or commissary and last, but not least, the personnel manager's office.

Laboratory, mechanical and electrical departments, receiving and shipping offices and the factory offices are usually placed adjacent to their respective working areas and are considered as neither the personnel facilities nor the general offices.

10. Waste disposal is usually divided into two parts —process and sanitation.

As the name implies, the process (also called industrial) waste is the unwanted by-product of operations that must be disposed.

Sanitation waste comes from the points of use consisting of toilets, washstands, showers, cafeteria, laundries, garage, laboratory, drinking fountains, etc.

The suspended solid matter in the sanitation waste or sewage could be decomposed by the anaerobic bacterial action (septicization) into gases and liquor.

Process waste, i.e. chemicals, sugar, starch, etc., may take years to decompose naturally.

Barring any unusual conditions, there is no problem with the disposal of the sanitation and industrial waste where adequate city sewers are present. Otherwise, elaborate systems of grease traps, diverting chambers, settling tanks, sludge removal means and leaching chambers may be required for the disposal of

The sanitation waste may be handled in a more or less standard system of septic and siphon tanks and leaching cesspools.

Some solid garbage could be burned in an incinerator. However, one must recognize and provide for the possibility of burning waste varying from the most reluctantly combustible to the most violently inflammable.

Proper trash and garbage storage should also be provided.

Dust, odors, fumes, smoke and even noise are considered as the undesirable by-products of

Individual and specialized treatment may be required to eliminate the air pollution and the nuisance potentials.

The number and location of the floor drains in the factory are dictated by the process and work areas.

Underground piping may also be installed to supply steam, to circulate cooling water, take care of overflow and drips from various equipment. The construction details and the exact positions should be carefully worked out because of the difficulties of making any subsequent alterations. The use of any pipe tunnels and trenches should be avoided by all means.





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Dr. Kathryn E. Langwill has been appointed assistant director of research of Refined Syrups & Sugars, Inc.

Dr. Langwill is well known in the candy industry for her work with the late Dr. Stroud Jordan, who directed the Applied Sugar Laboratories and

the Stroud Jordan Laboratories, New York City, 1932 to 1942. During this period, Dr. Langwill co-authored with Dr. Jordan a book entitled, "Chocolate Evaluation." Later, in 1946, Dr. Langwill also collaborated with Dr. Jordan in "Confectionery Analysis and Composition." She is currently chairman of the Stroud Jordan Award Committee, the American Association of Candy Technologists.

Director of Health Education for Lankenau Hospital, Philadelphia, Pennsylvania, since 1953, Dr. Langwill has been responsible for the community health education program of the hospital. She previously served as the Head of the Food and Nutrition Division of the College of Home Economics,

Drexel Institute of Technology.

Besides the American Association of Candy Technologists, Dr. Langwill is a member of the American Association for the Advancement of Science, the American Chemical Society, and the American Board of Nutrition. She has also served as president of the Philadelphia Section, American Home Economics Association, and secretary of the Philadelphia Chapter of the Institute of Food Technologists.

Born in Wolcott, New York, Dr. Langwill holds a B.S., M.S., and Ph. D. in chemistry and nutrition from Simmons College and Columbia Univer-

sity.

FEMA elects officers

The Flavoring Extract Manufacturer's Association elected E. N. Heinz, Jr., vice president of Food Materials Corporation, president for the coming year. C. P. McCormick of McCormick & Co., is the new first vice president, S. M. Kleinschmidt of Liquid Carbonic Division of General Dynamics is second vice president, and Dr. A. S. Wendt of Fred Fear & Co., is the third vice president. H. P. Wilson of Warner-Jenkinson Manufacturing Company is the new secretary. Lloyd E. Smith, Virginia Dare Extract Co., is the new treasurer.

Gerald H. Stuart has been appointed general manager of the National Milk Sugar Company, a unit of the Borden Company's Special Products Division. Mr. Stuart will remain as general manager of the Whitson Products Division, another unit of Borden's.

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Yes, "Advertising Benefits You"... 'specially businesspaper advertising.



Calendar

June 7; Confectionery Salesmen Club of Baltimore— Conrad Ruth Vills, Middle River, Md.

June 13-15: Pennsylvania Manufacturing Confectioners Assn annual meeting, Galen Hall, Wernersville, Pa.

June 15-18; Metropolitan Candy Brokers Show, N. Y. Trade Building, New York City

June 16-19; Southern Candy Jobbers Convention, Miami.
July 6, 7, 8, 9; Associated Retail Confectioners Annual
Convention, Mark Hopkins Hotel, San Francisco, Calif.

July 6, 7, 8, 9, 10; National Confectioners Assn., Sheraton Palace, San Francisco, Calif.

July; National Confectionery Salesmen's Ass'n Convention, Hershey, Penna.

August 3-7, National Candy Wholesalers Assn., Inc. annual meeting, Commodore Hotel, New York, N. Y.

August 11-13; Western Packaging & Materials Handling Expositon, Civic Auditorium, San Francisco

August 12; Chicago Candy Production Club Golf Outing, Elmhurst Country Club, Elmhurst, Ill.

August 12; Chicago Candy Production Club All-Industry Golf Tournament, Chicago

August 24-27; Boston Candy Show, Boston, Mass.

August 24-27; National Fancy Foods & Confections Show, Waldorf-Astoria Hotel, New York City

Sept. 16; Chicago section AACT. Inland Sugar factory plant tour. Inland Sugar office, Chicago.

September 21-23: Philadelphia Candy Show, Benjamin Franklin Hotel. Philadelphia

December 13; National Food Sales Conference, Chicago, Ill.



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The MANUFACTURING CONFECTIONER'S

Cleaning House



MACHINERY FOR SALE

FOR SALE

Bonus Cluster Machine Model S # 3 Savage Fire Mixers. 20 gal. Model F-6 Savage Tilting Mixers, copper kettle. 200 lb. Savage Oval Top Marshmal-200 lb. Savage Oval Top Marshmallow Beaters.
Cut-Rol Cream Center Machines.
50" two cylinder Werner Beater.
1000 lb. Werner Syrup Cooler.
200 lb. to 500 lb. Chocolate Melters.
24" and 32" N.E. Enrobers.
Simplex Gas Vacuum Cooker.
Simplex Steam Vacuum Cooker.
Savage Cream Vacuum Cooler.
600 lb. Continuous Vacuum Cooker.
Form 3 and Form 6 Hildreth and
Factory Model American Pullers.
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National Model AB Steel Mogul.
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Bausman Twin Disc Refiner Unit.
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100 gal. Copper Mixing Kettle with

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FOR SALE: Simplex Gas-Fired Vacuum Cooker, 3 ft., 4 ft., 5 ft. Cream Beat-ers, 50 to 300 lb. Chocolate Melters, Gas Stoves, Cut Roll and Friend Cream Cen-Stoves, Cut Roll and Friend Cream Center Machines, Pulling Machines, York Batch Rollers, Steam Jacketed Agitating Kettles, Model K Salt Water Taffy Wrapping Machine, Water Cooled Slabs, Marbles, Hobart & Reed Vertical Beaters, Candy Packing Wheel, Small Revolving Pans, Copper Kettles, Guillitine Caramel Cutting Machine and other items. You will find it worth while to check our prices first. S. Z. Candy Machinery Co., 1140 N. American St., Philadelphia, Pa.

MACHINERY WANTED

Wanted: 3 foot Ball Cream Beater. Must be in good condition. Arnold Candy Co., Peru, Ind.

SITUATION WANTED

Esq. Available to Set up a Bubble Chew-ing gum Factory in Foreign countries for gum Ball or Chiclets also Chocolate For gum Bail of Cinclets also Chocolates Bars, Creams, Caramels and all different Candy Pan Lines, Best reference from foreign Countries and United States. → Box 585. The MANUFACTURING CONFECTIONER.

SITUATION WANTED

Pan man working foreman for general line, gum coating, chocolate pan, etc., with initiative, ability and unlimited experience. Box 591, The MANUFACTUR-ING CONFECTIONER.

Experienced Candy & Food Technologist, having covered all phases of confectionery production, as well as other food products, wishes position to fully use his abilities and experience. Box 681. The MANUFACTURING CONFECTIONER FECTIONER.

PAN SPECIALIST — Life time experience as supt., and supervisor, have worked and taught pan work with the largest companies. Will teach all phase of pan work, will travel anywhere to teach, for steady work prefer NY Met. area. Companies looking to expand in pan work line can extra desurprise. work line, can set up dept. and supervise and teach personnel. Includes all kinds of pan work — Choc. work, candy coated work, soft work, & gum work. Box #583, The MANUFACTURING CONFECTIONER TIONER.

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WANTED AT ONCE, WORKING FOREMAN FOR STARCH DEPART-MENT, ALSO ENROBER MAN. STATE EXPERIENCE AND WAGES EXPECTED. YOUR ANSWER WILL BE HELD CONFIDENTIAL. Box 682, The MANUFACTURING CONFEC-TIONER.

"EXPERIENCED CANDY MAN - A well-known quality candy retailer lo-cated in Eastern & Midwest section of country requires an aggressive man who knows how to make all types of candies, with the ability to supervise and handle personnel. Rapid advancement for party with proper qualifications. In reply furnish the following information: personal background; training; experience; age and salary expected. Reply Box 484." The MANUFACTURING CONFEC-TIONER.

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Plant operation discontinued because of consolidation of operations.

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Dryer and Cooler with

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> Inspection Can Be Arranged By Appointment

Late type 24" Green Coater, type CG, complete with Automatic Feeder, Bottomer with Freon Cold Table and Compressor.

SOLD AS COMPLETE UNIT OR INDIVIDUAL MACHINES

Greer 24" Enclosed late style Multi-Tier Cooler and Packer, 4 Tiers, 160 ft. Cooling Travel, in 40 ft. floor space, 15 ft. Packing Table.



Attractively Priced For Zuick Sale



National Equipment 24" Enrober with Automatic Temperature Control, Decorator, Automatic Feeder, Bottomer with Freon Cold Table and Compressor.

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Greer 24" Enclosed late style Multi-Tier Cooler and Packer, 4 Tiers, 160 ft. Cooling Travel, in 40 ft. floor space, 15 ft. Packing Table.



Currie Automatic Starch Tray stacker.



PARTIAL LIST OF OTHER EQUIPMENT AVAILABLE:

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Savage 110 gal. Stainless Steel Oval Top Marshmallow Beater.

Racine Model EP Sucker Machine with Conveyor and Blower.

2-National Equipment 24" Enrobers with Bottomers and long Coolers and Packers.

National Equipment 300 lb., 500 lb., 1,000 lb. Chocolate Melters.

Chocolate Breaker.

Ideal Caramel Wrapper, 3/4 x 3/4 x 1/4

Mills two-way Caramel Cutter.

Mills Nougat Cutter. 2 - Mills 20" Sizers.

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3 - Merrow Cutrol Machines.

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confectioner's corn syrups and starches

Look them over, you probably know some of these Hubinger men who are "candy men" at heart. If you do, you know that when you specify OK BRAND corn syrups and starches you can depend on uniform high quality, prompt delivery, a "right price and top flight technical service . . . because you know these men know your needs in the candy business.

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